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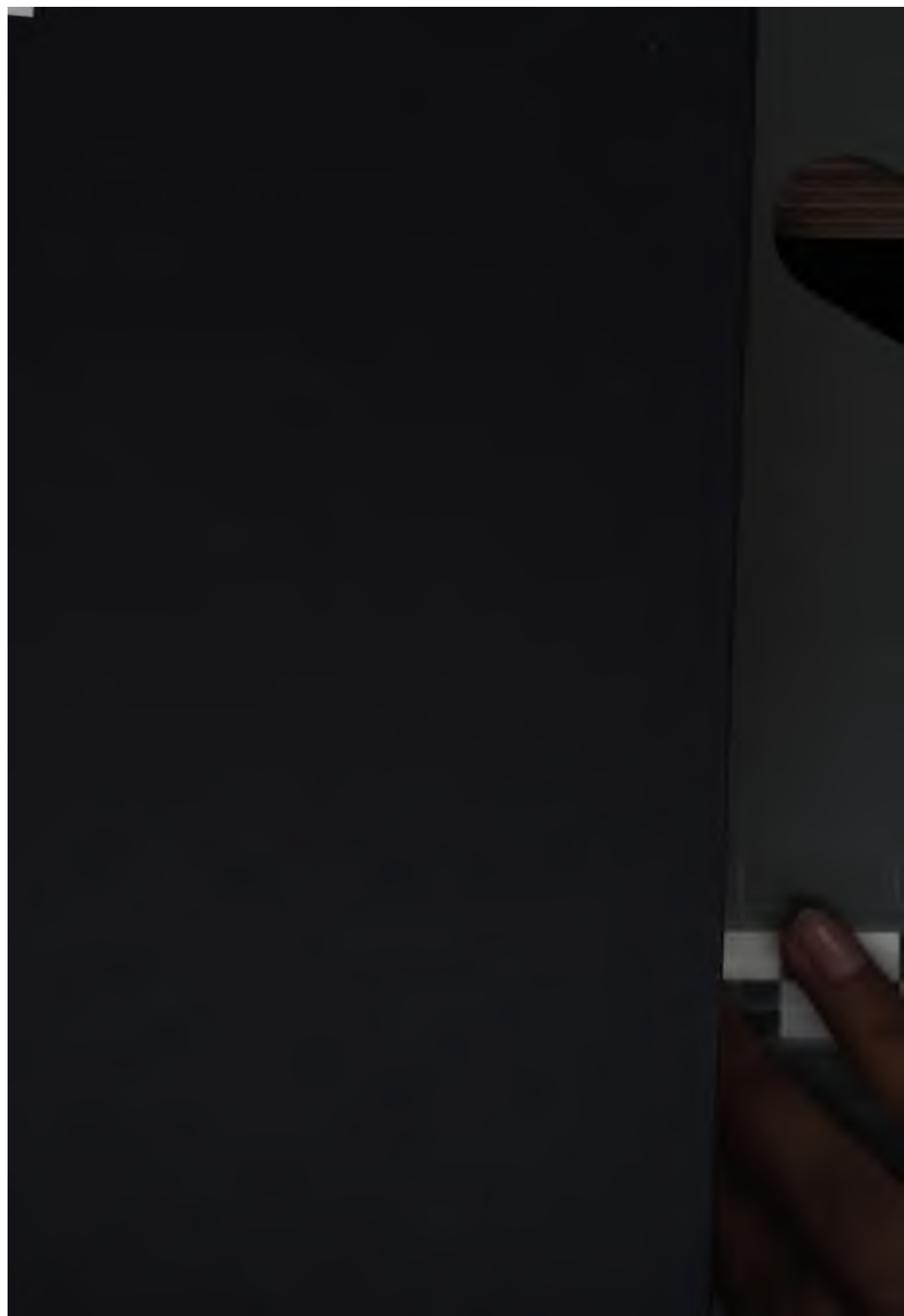
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PSYCHOLOGY

AND

SCIENTIFIC METHODS

EDITED BY

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PSYCHOLOGY AND SCIENTIFIC METHODS

THE THIRTEEN PRAGMATISMS. I.

IN the present year of grace 1908 the term "pragmatism"—if not the doctrine—celebrates its tenth birthday. Before the controversy over the mode of philosophy designated by it enters upon a second decade, it is perhaps not too much to ask that contemporary philosophers should agree to attach some single and stable meaning to the term. There appears to be as yet no sufficiently clear and general recognition, among contributors to that controversy, of the fact that the pragmatist is not merely three, but many gentlemen at once. Some recent papers by Perry in this JOURNAL set, as it seems to me, the right example, in discriminating a number of separate pragmatistic propositions and discussing each of them by itself. But perhaps even these papers do not insist so emphatically as it is worth while to do upon the utter disconnection and even incongruity that subsists between a number of these propositions; and there are one or two important ambiguities of meaning in certain of the pragmatists' formulas which do not seem to find a place in Perry's careful enumeration. A complete enumeration of the metamorphoses of so protean an entity is, indeed, perhaps too much to expect; but even after we leave out of the count certain casual expressions of pragmatist writers which they probably would not wish taken too seriously, and also certain mere commonplaces from which scarcely any contemporary philosopher would dissent, there remain at least thirteen pragmatisms: a baker's dozen of contentions which are separate not merely in the sense of being discriminable, but in the sense of being logically independent, so that you may without inconsistency accept any one and reject all the others, or refute one and leave the philosophical standing of the others unimpugned. All of these have generally or frequently been labeled with the one name, and defended or attacked as if they constituted a single system of thought—sometimes even as if they were severally interchangeable. This multiplicity of meanings in pragmatism is partly explicit and partly implicit; that is to say, it is partly due to the conjunction by the representatives of pragmatism of contentions which they themselves express by separate formulas; and it is partly

due to unrecognized ambiguities of meaning or duplicities of implication latent in one or another of these formulas.

It is to the latter source of divergency in the meaning of the pragmatist doctrines—to the profound equivocality of some of them—that I desire in this paper more particularly to call attention. But I shall try to put down all the logically independent doctrines of importance that seem to have been improperly reduced to unity in current discussions; and I shall try to exhibit the fact of their reciprocal independence in as clear a light as possible. To contribute to the determination of the truth or falsity of any one of these doctrines is no part of the business of the present discussion; for I venture to think that the question of truth has sometimes been not very profitably dealt with during the past ten years, in the absence of a sufficiently considerate prior clearing up of the question of meaning. The pragmatist school itself seems, thus far, more distinguished for originality, inventiveness, and a keen vision for the moles in the eye of the intellectualist, than for patience in making distinctions or the habit of self-analysis. And its critics, on the other hand, have occasionally made haste to take the utmost advantage of this unassorted commingling of doctrinal sheep and doctrinal goats in the ample fold of pragmatic theory, and have made the apparently caprine character of some members of the flock a warrant for the wholesale condemnation of the entire multitude. In view of this situation, nothing seems more called for than an attempt at clear differentiation of the separate pragmatist assertions and tendencies. There is, indeed, some danger that the enumeration of these variations may become an appallingly seductive new game for philosophers; one may even apprehend a risk that editors of philosophical journals may be tempted to seek a wider popular appeal by offering prizes to the *bona fide* subscribers who can count the greatest number of pragmatisms. Certainly it is probable that the following list could be extended. But I hope that it will be found to include all the genuinely independent contentions that are most frequently illicitly identified, and all the ambiguities of meaning that are so central and important as to call for serious consideration from both the defenders and the critics of the several opinions to which the one name has been applied.

1. Primarily, it is obvious, pragmatism—the pragmatism of Peirce, and of James's Berkeley address—was merely a doctrine concerning the meaning of propositions, concerning the way in which the really significant issue in any controversy could be determined. It maintained that the meaning of any proposition whatever is reducible to the future consequences in experience to which the proposition points, consequences which those who accept the

proposition *ipso facto* anticipate as experiences that somebody is subsequently to have. Now, a theory about the meaning of propositions is not the same thing as a theory about the criterion of truth in propositions; a formula which professes to tell you how to ascertain precisely what a given assertion really signifies does not thereby profess to tell you whether or not that assertion is true. James, at least, in his recent book and elsewhere, has clearly noted this distinction between pragmatism as a theory of meaning and pragmatism as a theory of truth; Schiller does not appear to do so, since he identifies the "principle of Peirce" with a view concerning the mark that "establishes the *real* truth and validity" of a proposition.¹ But I do not think that even James has sufficiently insisted upon the logical disconnectedness of the two theories. Indeed, the whole topic of the relation of meaning and truth might advantageously receive more extended discussion than it has yet had. It may at first sight seem that a close logical relation can be made out between the two, in at least one direction. To know what a proposition exactly means may appear to involve a knowledge of just where to look for the evidence of its truth and for the test by which its claim to truth can be brought to proof. If a judgment *means* merely certain future experiences, it might appear that its truth could be known only through—and, therefore, only at the time of—the occurrence of the predicted experiences. But I can not see that this really follows. The assertion "God exists and mere materialism is false" may possibly mean only the anticipation of a cosmic future different in specific ways from that which the acceptance of the contrary proposition would lead one to expect; but the criterion of the truth of the assertion need not be correspondingly future. Its truth may conceivably be known *now*, through a mystical intuition or by a "necessity of thought"; or (and this is apparently good pragmatist doctrine about knowledge) it may be a proposition that we are obliged and entitled proleptically to accept as a true postulate, because it satisfies a present (not a future) need. The experiences whose occurrence constitutes the meaning of the judgment may have one date; the apprehension of the judgment's validity, or legitimacy as a belief, may have quite another. According to one of the pragmatist theories of truth, a proposition is known as true (in the only sense of "true" which that theory regards as intelligible) at the moment at which it effectually operates to put an end to a felt inner discord or to open a way through a practical *impasse*; but the matter to which the proposition refers not only may be, but normally will be, subsequent to that moment of acceptance and

¹ "The Definition of Pragmatism and Humanism" in "Studies in Humanism," 1907, p. 5.

mental relief. A "plan of action" presumably relates to the future; but the determination of its "truth," or whatever kind of acceptability is pragmatically to pass for such, can not be postponed until the future to which it relates has been "verified" by becoming past; else all our "true" plans of action would, paradoxically, be retrospective, and we should have to say that the pragmatic man never is, but always is about to have been, blest with knowledge. If, then, the legitimacy of a belief is, upon pragmatist principles, to be known at one moment, while the experiences which it "means" may run on into later moments, it appears to follow that the fullest knowledge of the belief's meaning may throw no light whatever upon the question of its legitimacy. That—until the belief has (presumably) *lost* all meaning by coming to refer purely to past experiences—still remains, from the standpoint of pragmatism as a theory of meaning, a separate and unsettled question; it is impossible to infer that the pragmatist theory of validity is any more correct than another. The acceptance of either one of these theories, equally known as "pragmatism," leaves you an entirely open option with respect to the acceptance of the other.

2. This pragmatic theory of meaning, as used by James, who has been its principal expounder and defender, seems designed to function chiefly as a quieter of controversy, a means for banishing from the philosophic lists those contestants between whose theories there appears, when this criterion is applied, to be no meaningful opposition, in whose differences there lies no issue that "makes a difference." In this application, however, the criterion clearly exhibits a radical ambiguity. The "effects of a practical kind" which our conception of an object must (we are told) involve, the "future consequences in concrete experience, whether active or passive," to which all significant propositions must point, may consist in either: (a) future experiences which the proposition (expressly or implicitly) predicts as about to occur, *no matter whether it be believed true or not*; or (b) future experiences which will occur *only upon condition that the proposition be believed*. The consequences of the *truth* of a proposition (in the sense of its correct pre-representation of a subsequent experience to which its terms logically refer), and the consequences of *belief* in a proposition, have been habitually confused in the discussion of the pragmatic theory of meaning. Taken in the one sense, the theory is equivalent to the assertion that only definitely predictive propositions—those which, by their proper import, foretell the appearance of specific sensations or situations in the "concrete" experience of some temporal consciousness—have real meaning. Taken in the other sense, the theory does not require that propositions *refer* to the future at all; it is

enough that, by being carried along into the future as beliefs in somebody's mind, they be capable of giving to that mind emotional or other experiences in some degree different from those which it would have in the absence of the beliefs. No two doctrines could be "pragmatically" more dissimilar than the pragmatic theory of meaning when construed in the first sense, and the same theory when construed in the second sense. If the formula includes only "future experiences" of the class (a), it has the effect of very narrowly limiting the range of meaningful judgments, and of excluding from the field of legitimate consideration a large number of issues in which a great part of mankind seems to have taken a lively interest; and it must assuredly be regarded as a highly paradoxical contention. But if it includes also future consequences of class (b), it is no paradox at all, but the mildest of truisms; for it then is so blandly catholic, tolerant and inclusive a doctrine that it can deny real meaning to no proposition whatever which any human being has ever cared enough about to believe. In James's "Pragmatism" his criterion is applied to specific questions sometimes in one sense and sometimes in the other; and the results are correspondingly divergent. Using his formula in the first sense, he argues, for example, that the only "real" difference between a theistic and a materialistic view of the universe is that the former entitles us to predict a future in human experience that contains certain desirable elements for the expectation of which materialism gives no warrant. In other words, the whole "meaning" of theism is declared to be reducible to the anticipation of a specific cosmic or personal future; and the only genuine issue between it and the opposing doctrine lies in the question of the legitimacy of this anticipation. "If no future detail of experience or conduct is to be deduced from our hypothesis, the debate between materialism and theism becomes quite idle and insignificant." Supposing matter capable of giving us just the same world of experience as a God would give us, "wherein should we suffer loss if we dropped God as an hypothesis and made the matter alone responsible? Where would any special deadness, or crassness, come in? And how, experience being what is once for all, would God's presence in it make it any more living or richer?"² "Treated as it often is" (i. e., treated non-pragmatically), "this question becomes little more than a conflict between esthetic preferences," between different ways of talking about, imaging, or explaining the ancestry of, precisely the one, identical, actual world of past, present, and future experiences; and such differences in esthetic preferences are treated by James as "abstract" things that really make no difference. In the spirit of this chapter of James's book

² "Pragmatism," Lecture III., *passim*.

—which is the spirit of the Enlightenment at its narrowest, most utilitarian, least imaginative—one might go on to eliminate from consideration, as pragmatically meaningless, a large part of the issues over which metaphysicians and theologians have divided; one might show that (apart from the having of the beliefs themselves, which from the present point of view does not count) it makes no difference whether you believe or reject most of the dogmas of theology or the hypotheses of speculative philosophy. For these largely refer to alleged permanent, unvarying factors of reality, from which no specific contents of experience (beyond, once more, the experiences directly arising from the recognition of the presence of those factors) can be clearly deduced. The trinitarian presumably does not necessarily anticipate “concrete future experiences” different from those anticipated by the unitarian; nor need the pantheist expect the cosmos to behave in a manner other than that expected by the pluralistic theist. Later in James’s book, however, we find his criterion taken in the opposite sense; for example, while the author observes of the monistic doctrine of the absolute that “you can not redescend into the world of particulars by the absolute’s aid or deduce any necessary consequences of detail important for your life from your idea of his nature,” just this non-predictive doctrine is credited with genuine pragmatic meaning, because “emotional and spiritual” consequences flow from the belief in it (pp. 273–4). And in *this* spirit, all beliefs with which human emotions have in any degree become entangled would have to be regarded by the pragmatist as *ipso facto* meaningful and serious. It would not even be necessary that the beliefs should, in the ordinary logical sense, have any intelligible import at all. There are some who feel pretty sure that those who adhere, for instance, to the nihilistic monism of the Vedanta, or to the Athanasian doctrine of the Trinity, never really *conceive together* the elements of the propositions that they affirm; but no one can deny that, out of the maintenance of the posture of belief towards these propositions, believers derive highly distinctive and vivid experiences, which they could scarcely have in any other way. And for all such beliefs our pragmatist—who, but a moment ago, seemed so narrow and ferocious an *Aufgeklärter*—would now be compelled to find a place among the significant issues.

The pragmatic theory of meaning thus breaks up into two possible doctrines that are not merely different, but incongruous. We seem to be justified in calling upon the pragmatist to make an election between them. If I may, for a moment, go beyond the province chosen for this paper, I venture to predict that neither choice will be found welcome; for I suspect that all the charm and impressiveness of the theory arises out of the confusion of its alternative inter-

pretations. It gets its appearance of novelty, and of practical serviceableness in the settlement of controversies, from its one meaning; and it gets its plausibility entirely from the other. But (when the distinction is made) in the sense in which the theory might be logically functional, it seems hardly likely to appear plausible; and in the sense in which it is plausible, it appears destitute of any applicability or function in the distinguishing of "real" from meaningless issues.

3. But the pragmatic theory of meaning in its first sense—with its characteristic emphasis upon the ultimately predictive import of all judgments—leads to a theory concerning the way in which judgments are verified; in other words, to a theory about the meaning of truth. If all judgments must refer to specific future experiences, their verification consists in the getting of the experiences which they foretold. They are true, in short, if their prediction is realized; and they can, strictly speaking, be known to be true only through that realization, and concurrently with the occurrence of the series of experiences predicted. James presents this doctrine with an apparent exception in favor of "necessary truths"; which, since they coerce the mind as soon as they are clearly presented to it, are (he seems to admit) verified "on the spot," without waiting for the presentation in experience of all empirical phenomena that may be referred to by them. But even this exception is not recognized entirely unequivocally; and in any case, for the great mass of our judgments, their truth consists in the correspondence of the anticipations properly evoked by them with subsequent items of experience; and the verification of their truth comes only when the whole series of such items which they foreshadowed has been completely experienced. "All true processes must lead to the face of directly verifying experiences *somewhere*, which somebody's ideas have copied." "Truth *happens* to an idea. It becomes true, is made true by events. Its verity *is*, in fact, an event, a process: the process, namely, of its verifying itself, its *verification*."³

Now, I have already tried to show that such a theory of truth is neither identical with, nor properly deducible from, the original pragmatic theory of meaning—in either of its senses. I wish now to make more fully clear the precise import of this theory of truth, and to show its contrast with another type of theory of truth which also and, I think, more properly figures as pragmatism. Observe that the words quoted give us a theory of truth which is obviously not at the same time functionally serviceable as a theory of knowledge—which seems a strange trait in a pragmatist theory. According to this phase of pragmatism, judgments are not true till they

³ "Pragmatism," pp. 215, 201.

become true; and when they have become true they have no importance (and, as I have suggested, they even ought to be said, on pragmatist principles, to have no meaning), for their reference is to the dead past. Our intellect is condemned, according to this doctrine, to subsist wholly by a system of deferred payments; it gets no cash down; and it is also a rule of this kind of finance that when the payments are finally made, they are always made in outlawed currency. Now, of course, what we practically want, and, indeed, must have, from a theory of knowledge is some means of telling what predictions are to be accepted as sound *while they are still predictions*. Hindsight is doubtless a good deal more accurate than foresight; but it is less useful. No one is likely to deny that a valid proposition (in so far, at least, as it is predictive at all) must "lead us finally to the face of some directly verifying experience"; but I can conceive no observation which it can be more unprofitable to dwell upon than this one. If this were all that a pragmatic epistemology had to tell us, it would assuredly be giving us a stone where we had asked for bread.

But, of course, there is a form—or more than one form—of pragmatic epistemology that offers to meet the real needs of the situation in which the problem of knowledge arises—that seeks to tell us what predictive judgments ought, and what ought not, to be believed, before the "verification" of those judgments in actually possessed experience makes the question concerning their truth as irrelevant and redundant a thing as a coroner's inquest on a corpse is—to the corpse. And these pragmatist theories about the criterion of truth—*i. e.*, about the marks of the relative validity of propositions—which attempt to be really functional ought to be completely distinguished from this sterile doctrine which insists that the only true proposition is a dead proposition.

These theories, however, and others, must be considered in a subsequent instalment of this *histoire des variations*.

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PSYCHOLOGY AS SCIENCE OF SELF

I. IS THE SELF BODY OR HAS IT BODY?

THE main results so far reached by this discussion are the following: I have defined psychology in a provisional way as science of consciousness and have pointed out that, as thus regarded, it may more definitely be conceived (1) as science of ideas or contents, often

named structural psychology, or (2) as science of mental functions, so-called functional psychology, or, finally, (3) as science of the conscious self. I have then insisted that the third form of psychology is really fundamental to the others and implied by both of them. An idea-as-such, I have argued, is a needlessly artificial abstraction: every idea is experienced as idea-of-a-conscious-possessor-of-ideas. And, similarly, a mental function is experienced as activity of a mental functioner, or agent. Such a possessor of ideas, or mental functioner, may best be called a self; and I have next, therefore, to discuss the nature of the self.

Among the different views of the "self," or mental functioner, as object of scientific psychological study, there are two which stand out sharply in contemporary discussion. The first identifies the self, as mental functioner, with the psychophysical organism—in a word, it conceives the self as mind-in-body or mind-plus-body: according to this view, body constitutes part of self. The second theory conceives of self as non-inclusive of body: according to this view, body is *not* part of self, though it may well be regarded as closely related to self. On the basis of these two theories of the psychologist's self, there are three distinguishable forms of self-psychology. (1) In the first place, the self may be conceived as psychophysical organism, and psychology may be regarded as science of the processes or functions of the conscious body, the mind-and-body-complex. This seems to me to be the practical procedure of most of our present-day functional psychologists—especially it seems to be the conclusion of American psychologists. The use of the term "self" in this sense is expressly sanctioned by Professor Angell in his most recent paper.¹ The objection to this view is the following: in regarding mind and body as together making up a complex the psychologist compounds phenomena which are in great degree distinct, and he thus fails to account for the admitted distinction of the functions of the so-called psychophysical organism. If it were justifiable to regard mind and body as compounded; or united, in a psychophysical organism, then all the functions of this organism should be neither physiological nor psychical, but themselves psychophysical. Functional psychologists, however, though they point to certain psychophysical functions—such as selection, adaptation, variation—yet never escape the necessity of distinguishing from these the "purely psychical" and the "merely physiological" functions. Implicitly or explicitly, they all perforce agree with Angell in admitting the existence of "dominantly physiological functions . . . assimilation, reproduction, motion," which they distinguish from "the categories"—sensibility, for instance—"appropriate to the psychical

¹ "The Province of Functional Psychology," *loc. cit.*, p. 82 and note.

alone."² But if it is still necessary to distinguish psychical from physiological functions, nothing seems gained by the doctrine that the functioner is psychophysical. It is surely quite as simple and more logical to admit the existence of a psychical functioner of psychic functions in close relation to a physical functioner of physical functions than to insist on the identity of the two functioners while yet one is obliged to distinguish the two groups of functions as radically different.

(2) A second, logically possible form of self-psychology would regard the self, or mental functioner, as mind-without-body, self unrelated to body. So far as I know, nobody nowadays champions this doctrine and I should not take time to mention it were it not that Professor Angell attributes it to me. "Such a functional psychology," he says, "as I have been presenting would be entirely reconcilable with Miss Calkins's 'psychology of selves' . . . were it not for her extreme scientific conservatism in refusing to allow the self to have a body, save as a kind of conventional biological ornament. The real psychological self, as I understand her, is pure disembodied spirit. . . ." It ought not to be necessary for me to explain that I have never held, or meant to teach, a psychology of disembodied spirit. I do indeed believe that it is possible to analyze, classify, and (in a sense) to explain psychic phenomena without reference to their physiological or biological correlates: in other words, I hold, with Professor Warren, that "psychological investigation can be carried on without . . . physiological research."³ But the intimate connection, to ordinary observation, of psychical and physical—the facts that certain psychical phenomena, notably perceptions, are inexplicable psychologically and yet in close relation to physical phenomena, and that still other phenomena, as those of "instinctive" liking and interests, are biologically, not psychologically, explicable—these considerations speak unequivocally against a conception of psychic self as unrelated to body.

(3) The third view (and the one which I hold) of the psychologist's self regards the self as distinct from body, but related to it. Thus, so far from "refusing to allow the self to have a body," I insist that it precisely *has* a body, and does not *consist in* body, is not made up of body-and-mind. This procedure avoids the difficulty, already stated, of the psychophysical organism conception which, however successful in uniting two functioners, loses all the value of the union since it has still to distinguish two sorts of functions, psychical and physiological. And, positively, this conception of the

² *Op cit.*, pp. 76-77.

³ H. C. Warren, "The Fundamental Functions of Consciousness," *Psychological Bulletin*, Vol. III., p. 218.

self as *having* body, related to body, may be enriched by all the facts, physiological and biological, of functional psychology. That is to say, it is germane to self-psychology both to teach that the bodily phenomena which regularly accompany consciousness have values in the perpetuation of biological individual and of race, and to show that certain physical facts are the regular antecedents or accompaniments of certain facts of consciousness. "Such a settlement of the issue," Angell would object, "is easy and logically consistent. But does it not leave us with a gulf set between the self as mind and the self as body for the crossing of which we are forthwith obliged to spend much needless energy, as the gulf is of our own inventing?"⁴ To this objection I should answer: first, I do not think that the gulf is of our own inventing. As scientists, we have to start out from the standpoint of every-day adult consciousness; and for this the distinction between mind and body is already clearly made. And, secondly, I can not admit that undue energy is needed to cross the gulf. As psychologists, once more, we are not concerned with the philosophical problem of the relation of mind and body; we take for granted the existence of the two, and their relation, on the ground of observation behind which we, as *scientists*, have no business to probe. It is perfectly simple to treat the relation between psychical and physical as that of concomitance, antecedence, or consequence, without taking sides with interactionist, parallelist, epiphenomenalist, or panpsychist. And, finally, as I have so often insisted, this "gulf" between psychical and physical must be bridged not only by upholders of this doctrine of "the self which has body," but by advocates of the psychophysical organism doctrine. The difference is simply that the gulf lies, in the one case, between self and body and, in the other case, between purely mental function and physiological function.

In insisting that self-psychology, conceived as science of the "conscious self which has body," is in essential harmony with the characteristic teachings of functional psychology, I am delighted to find myself in substantial agreement with Professor Judd, as I read his recently published "Psychology." The book "aims" explicitly "to develop a functional view of mental life" and yet it teaches that "psychology deals with the self."⁵ The self, Dr. Judd definitely teaches, is not "independent in its development of bodily organs." Yet the self certainly is not, as conceived by Judd, a mere psychophysical organism. It is "the center of all possible forms of relationship . . . to other selves, to the physical world, . . . to all other phases of known reality. . . . It is characterized," Professor

⁴ *Op. cit.*, p. 82, note.

⁵ "Psychology, General Introduction," p. 315. Cf. pp. 310-311.

Judd adds, "by a unique type of activity which . . . we describe when we use the word 'consciousness.' "

The conclusion that the self, or the basal fact of psychology, stands in close relation to its body, presses the question: What, more precisely, is the nature of this relation? Differently phrased, the question may read: What reference shall the psychologist make to physical phenomena? In order to answer this question it is necessary to ask more generally wherein adequate scientific procedure consists. The task of any scientist is twofold: first, to describe or portray and, secondly, so far as possible to explain the phenomena which he treats. Observation, analysis, and classification are, taken together, the main factors of scientific description; and psychological description, "the exact portrayal of conscious life," involves keen observation of the psychic fact, complete analysis of it into its constituent factors, and adequate classification of it by its likeness and unlikeness to other phenomena. Explanation, in the narrowly scientific sense, consists in the discovery of the additional phenomena, psychic and physical, to which a given psychic fact is related (otherwise than by its likeness or its difference). This other phenomenon may itself be a psychic fact—as when a memory is "explained" as due to repeated perception; or it may be a fact of another order—physical (in the narrow sense), or physiological, or biological. It will be observed that nothing in this conception essentially contradicts the doctrine that science is always descriptive, never explanatory—an answer always to the question "how?" not to the question "why?"⁸ For the kind of explanation which such a doctrine excludes from science is explanation of the ultimate, metaphysical sort; not explanation conceived as a tracing of antecedent and consequent or of simultaneous correlates. One further statement must be made with reference to the ideal scientific explanation. Such an explanation would serve to classify the phenomena which it explained. For phenomena may be grouped and classified not only according to their internal likenesses and unlikenesses, but also with reference to the likenesses and differences of the phenomena which explain them.

This simple distinction, rather generally admitted, between explanation and description indicates clearly, I think, the part which physiology and biology—and, to less degree, physics—have to play in psychology. It is clear that psychic phenomena are incapable of scientific analysis into non-psychical factors: an emotion can no more be *described* by an enumeration of the frontal lobe excitations, the

⁸ Cf. K. F. Pearson, "The Grammar of Science," 2d ed., pp. 306, 332, 344 *et al.*

contractions of unstriped muscles, and the instinctive attitudes which precede or accompany it than a picture can be described by an account of the mixing of the pigments used in painting it. On the other hand, it has become increasingly evident that psychic phenomena may be (in the scientific sense already outlined) more or less adequately explained by linking them with physical, physiological, and biological phenomena. It is not possible in the limits of my space to consider in detail the adequacy and extent of these explanations, but a few more specific comments are needed. The explanation of facts of consciousness by physical phenomena is admitted to hold only partially. It is possible to distinguish sensational consciousness from every other sort, as that which follows primarily on physical stimulation, and to differentiate most forms of sensational stimulus from each other; but no close correspondence can be traced between the physical and the psychical. In particular, a simple physical stimulus (as colored light) often conditions a complex sensational experience, whereas a highly complex stimulus (white light, for example) may be the antecedent of relatively simple sense consciousness.

The explanation of psychic fact by physiological is a far more adequate procedure. The account of sensational consciousness as correlated with the excitation of end organs and of fixed parts of the central nervous system and as regularly accompanied by characteristic muscular contractions⁷ represents the most assured results of this method of explanation, but fruitful theories abound with reference to the physiological accompaniments of affective and even of relational and volitional consciousness. The insufficiency of the purely physiological explanation must, however, be admitted. In the first place, much of it is avowed hypothesis—it can not, for example, be claimed that any physiological explanation of the sensation of pain, or of the consciousness of extensity, or of the affective experience is at present stably assured. It is evident, in the second place, that the physiological explanations are entirely inadequate to the classification of psychic phenomena. For even granting that distinctions in physiological accompaniment mark off from each other the large divisions of our conscious experience, no such distinctions can be found corresponding with the finer differentiations of the conscious life. By aid of physiology one may indeed dis-

⁷ The "biological" psychologists (the prevailing American type, as has appeared, of functional psychologists) often assume that the study of muscular reactions belongs exclusively to them, and accuse the physiological psychologists of a too exclusive concern with afferent fibers and nerve centers. The truth is, of course, that the conception of contracting muscles and of body in motion is, at base, physiological, becoming biological when supplemented by the notion of organic adaptation.

tinguish perception from imagination, visual from auditory imagination, and (less certainly) imagination from thought, and both imagination and thought from emotion. But no one has ever suggested a distinction of connecting fibers or of association centers which provides a reasonable basis for the clearly marked difference between discrimination and generalization or between egoistic and sympathetic joy.

The relation of biological to psychological phenomena has finally to be considered. The biological conception of consciousness is that of a reaction-to-environment which is, on the whole, beneficial, and is either immediate or delayed, either an adaptation or an interference. From the point of view of the biologist this may appear to be a description of consciousness, but to the psychologist it is evident that one gives no account of consciousness-as-such by naming it useful reaction, whether accommodating or selective, to environment. Really to describe consciousness, one must recognize it as, let us say, dominantly sensational or affective, as receptive or assertive, as individualizing, and as "egoistic." But while biology can furnish us no description of consciousness, it goes farther in providing us with explanations (in the sense already made clear). This becomes evident through a study of biological phenomena—in particular, of organic reactions and attitudes. The main distinction made here by biologists and by biological (often called functional) psychologists is the familiar one between (1) immediate or "short circuit" organic responses and (2) delayed or "long circuit" responses.⁸ From this point of view our relatively simple sensational and affective experiences are explained as accompaniment or result of immediate organic responses and are thus definitely marked off from thought, emotion, and the volitional consciousness—experiences of which the characteristic antecedents or correlates are complex attitudes and delayed activities. It is evident that the immediate response to environment is necessary to the preservation and perpetuation of primitive and relatively undifferentiated organisms and that it is similarly a useful sort of reaction for the developed organism in many phases of its life; and it is equally obvious that the delayed reaction is essential to the survival, and consequently to the propagation, of the complex organism which has need to respond in varying fashion to surroundings of various sorts. Within this second group, that of the delayed reactions, it is possible, also, to make further differentiations. One may, as already indicated, distinguish reactions which are mere adaptations to environment from those which in some way alter or control the environment; one may also distinguish reactions of advance from reactions of with-

⁸ Cf. Angell, "The Province of Functional Psychology," *op. cit.*, p. 74.

drawal; and one may, finally, characterize given organic responses according as they are the continuations or the interruptions of preceding reactions. Emotional activities may, for example, be regarded as interruptions both of habitual and of simple voluntary responses;⁹ and then, within this group of delayed and interrupting reactions, rage may be explained as an emotion characterized by a reaction of advance, tending to interfere with the environment, and making for self-preservation; liking may be explained as an emotion, accompanied by an adaptive reaction of advance, which makes for the perpetuation of the race; fear as an emotion correlated with an adaptive movement of withdrawal, which is essential to self-preservation. Of course, all these characteristic attitudes and reactions may be regarded as survivals of the instinctive responses of primitive organisms.

But it is obvious, once more, that this procedure, however illuminating, does not suffice to differentiate all distinguishable forms of consciousness—in other words, that the biological conception (whether conceived as explanation or as description) does not furnish a sufficient classification of psychic phenomena. The function of emotion as a whole may indeed be distinguished from that of reasoning, and the function of joy from that of grief, the function of love from that of hate. But it certainly is not possible to differentiate, on the basis of function alone, between, let us say, memory and imagination, or between malice and envy. There is, in truth, no need to argue this point, for all “biological” psychologists make some use of other-than-biological distinctions in their classification of consciousness, that is, they treat the biological as supplementary to the distinctively psychological procedure. Angell, indeed, admitting “the paucity of the basic modes” of biological utility, argues that the biological method is valuable precisely “by virtue of the strong relief into which it throws the fundamental resemblances of processes often unduly severed in psychological analysis.”¹⁰ This means, of course, that the biological explanation of phenomena of consciousness, important as it is, is insufficient as discrimination of distinguishable facts from each other.

The general conclusions of our examination of these non-psychical principles of explanation are thus the following: on the one hand, it is evident that an ideally complete psychology must take account of those facts of physics, physiology, and biology which border on the domain of psychology. To neglect these groups of phenomena would be, indeed, to overlook the obvious relations of

⁹ Cf. John Dewey, “The Theory of Emotion,” *Psychological Review*, Vol. II., pp. 13 ff.; Angell, “Psychology,” pp. 321 ff.

¹⁰ “The Province of Functional Psychology,” *loc. cit.*, pp. 74¹ and 73².

consciousness to the rest of reality; and this neglect would involve, also, a loss for psychology of fruitful methods and applications. For precisely because physiological conditions and organic reactions are more directly and often more readily controllable than psychic states a knowledge of them may have both methodological and practical value. On the other hand, it has been shown, first, that the physical, physiological, and biological explanations of psychic phenomena are—many of them—insufficiently established and hypothetical in nature, and, secondly, that they afford an insufficient classification of psychic phenomena.

But apart from these criticisms on the success of these explanations of psychic phenomena in non-psychic terms, it must be expressly reiterated that such explanations, however complete and well verified, can never exhaust the procedure of the psychologist, that they are indeed subsidiary to his basal purpose, the description, or portrayal, of the psychic fact. "The distinctive aim of the psychologist," in the words of Professor Stout, "is to investigate mental events themselves, not their mechanical accompaniments or antecedents."¹¹ The distinctions between ether and air vibration, between red and cone excitation, between short-circuit and long-circuit response, or even between self-preserving and race-perpetuating activity, are not distinctions within consciousness. Such distinctions may, indeed, serve to group facts of consciousness, but they form no part of a description of facts of consciousness. In other words, these non-psychological principles of explanation, useful as they are, are supplementary to the description of conscious experiences by psychological analysis.¹²

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REVIEWS AND ABSTRACTS OF LITERATURE

Pestalozzian Movement in the United States. W. S. MONROE. Syracuse: C. W. Bardeen. 1907. Pp. 244.

The purpose of the volume is well described in the following words taken from the preface: "No educator in modern times has more pro-

¹¹ "Analytic Psychology," I., p. 3.

¹² For brief treatment of explanation in physical terms, cf. a later paper of this series. Because of the limits of my space, I do not here refer to Münsterberg's theory, that description is communication and that communication is only possible in terms of physical objects, since only such are sharable by several subjects. To this it may, I think, be objected: first, that description does not logically involve communication—one might, in other words, be a scientist-in-solitude; secondly, that the difficulty is rather philosophical than psychological, and that the psychologist may properly assume a parallel existence in other selves.

foundly influenced his contemporaries and immediate successors than Pestalozzi. . . . The purpose of the present work is to trace this movement (Pestalozzian) in the United States and to place on record the labors of a score of men who caught something of Pestalozzi's insight and enthusiasm and who sought to bring about a better order in the educational world by the adaptation of his reforms to the conditions of the new world."

For the purposes of orientation the author devotes the first chapter of his book to the spread of Pestalozzianism in Europe. The account is written in a clear and simple style and fulfills adequately the purpose of developing a background for the remaining ten chapters. Chapters II., III., IV., are devoted to an account, first, of William McClure, a Scotch philanthropist, who believed that in Pestalozzi's system he had discovered the educational clue to the permanent reforming of social conditions and who felt himself most powerfully drawn to the United States and its problems; secondly, to the activity of Joseph Neef, a coadjutor of Pestalozzi, who had been brought over to America by McClure to found and to superintend schools of the Pestalozzian order. Both accounts are simple and illuminating. Chapters V.-IX., inclusive, are devoted to an outline of the influence of Pestalozzianism as exhibited, first, in schools founded on the Pestalozzian plan and, secondly, in the careers of noted American educators (such as Alcott, Mason, Barnard, Sheldon, H. Kruse, Jr., W. T. Harris, and others) who had received inspiration and illumination from the work of Pestalozzi. Chapter X. is devoted to Pestalozzian literature in the United States, and Chapter XI. gives an excellent bibliography of the movement.

Taken in all, the volume is a readable and worthy introduction to the study of the American aspects of a movement which, in the past, has influenced education deeply and which, for the future, promises to be even more influential.

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Sur les fondements de l'arithmétique. C. LUCAS DE PESLOÜAN. *Revue de Philosophie*, April, May, June, 1907. Pp. 372-397, 489-509, 568-593.

We have here the most alluring criticism of modern mathematical logic which has yet been offered to philosophic readers. In the form of letters, the author relates the experience of a man who has heard of the "rational method" of dealing with exact science and makes use of a visit to Paris to acquaint himself therewith.

The work chosen as the basis of his studies is Laurent's "*Sur les principes de la théorie des nombres et de la géométrie*," a very unfortunate choice, for the work is far from being a model of its kind. At the outset he is hampered by the difficulty of putting aside presuppositions, even knowledge of counting, but he manfully makes the effort and commences the text. Four hypotheses take the place of traditional

axioms, but such ideas as "one," "alternative," "dualism" appear, of which the knowledge was lost with that of counting, and also the student is compelled to add new hypotheses which the text fails to supply. Nevertheless he professes himself filled with enthusiasm and commends the new method for the instruction of the young, although confessing himself to retain, as a result of early education, a persistent longing for some intuitively certain axioms.

The second letter reports the results of a conversation at the book-seller's with a young philosopher, who astounds the writer with the idea of mathematics as a hypothetico-deductive system which is utterly heedless whether its postulates correspond to real things or common notions, but which aims solely at the development of non-contradictory systems; a mathematics which has as its ideal the attainment of a minimum of principles and postulates even if in so doing it seems artificial and paradoxical, or deduces evident propositions from the less evident. In order to be free from misleading connotations of words, a sign language is necessary, and he turns first to Couturat's *L'algèbre de la logique*, as an introduction to the *Principes de mathématiques* by the same author, and to Peano's *Formulaire*.

The writer tells us how fine are the nominal definitions of zero, unity, finite and infinite, etc., and he is delighted to find that instead of "simple" ideas such as number and space, which Pascal accepted, the "natural light" reveals ideas of "class," "class of classes," "class of classes of classes," "implication," "relation," "correlation," "correspondence," "belonging to," "dependence," "function," etc., and, best of all, the postulates themselves are not ideas expressed in words, but mere assemblages of signs capable of being changed only by other assemblages of signs, also postulates. He must now not merely be ignorant of number, but of all intellectual things. Unfortunately, the method is not sufficiently developed to be used in elementary education!

Our student next encounters an aged engineer who passes his leisure in mathematical research. The new friend is not filled with enthusiasm for these researches of his and astonishes him with the information that there are great mathematicians, such as Poincaré, unversed and uninterested in them. Then he criticizes the whole movement from the mouth of Pascal. Commencing with the profound reservation that we are first shocked and only later find reasons, not *why* we are shocked, but *because* we are shocked, he opposes the method as being a complication of mathematics, fruitless in its results, and hostile to the creative imagination. Also the attempt at a complete symbolization of concepts is ridiculous.

No brief review can give an adequate presentation of the profound appeal of the serious criticism half hidden in these humorously written letters. But we should not be too hasty in letting M. de Peslouan persuade us to neglect attempts to reconstruct the logic of mathematics. Poincaré himself, the most severe critic of the movement, has recognized

two types of mathematical minds,¹ the one intuitively inductive and the other critically deductive; to the former belong the great discoverers, to the latter the selective critics who develop and perfect discoveries and weed out falsehoods sometimes taken for truths. If mathematical logic were pushed to an extreme and proposed as the tool of the former of these types of minds, such criticism as the above would be merited, but such critics as M. de Peslouan forget its meaning for mathematicians of the other type.

To view mathematics as hypothetico-deductive is already critically to recast existing systems, of which the empirically traceable origin is generally far from deductive. Surely new systems, perhaps trivial, can be developed deductively from arbitrarily chosen postulates, but this is done in practise only for the critical reaction of such systems on those already existing. But the method viewed as functioning critically lets our author's criticisms fall harmless. The postulates are indeed artificial, but if they are recognized as the results of analysis rather than as bases of creative generation, half the reproach in this vanishes and the remainder is gone when we relate them to the demands of simplicity. Simplicity is a difficult notion to define. What is simple for one purpose is for another highly complex, and the only fair test of simplicity for notions in postulates is the pragmatic one, what notions work best for the use we wish to make of them. Judged thus, there is a good deal to be said for those so strenuously objected to by our author and by many philosophers and mathematicians. To see the one in the many is certainly a simplification, and these notions, however complex they may appear to intuition, at least enable us to connect formal logic, the various branches of analysis, and geometry in a very close and remarkable fashion when they would otherwise appear as comparatively isolated branches of learning.

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The Phenomenal Sanctions of the Moral Life. F. C. DOAN. *Mind*. N. S., No. 62, April, 1907. Pp. 196-208.

Mr. Doan evidently belongs to the militant school of Mr. F. C. S. Schiller. He is strongly—one may infer, temperamentally—opposed to the intellectualistic rigidities of absolutism, an ardent advocate of "the newer hedonism" and "the newer pluralism." And he is in the main an effective advocate, although he would not weaken his case by the use of more measured rhetoric.

The present article is an application of the general position set forth by the same writer in an earlier article in *Mind* (N. S., 54) entitled "Phenomenalism in Ethics," in which he maintains that, ethically, reality is incomplete and indeterminate; that the psychological self of "functional identity" is adequate for ethics; and that ethical sanctions inhere

¹ "La valeur de la Science."

emotionally in the acts themselves and not in any absolute standard conceived as a limit. The ethical absolute is a product of reflection upon conduct; it plays no part in the moral experience itself. Phenomenalism Mr. Doan defines in the terms of his opponent, Mr. Bradley, as "confinement of one's attention to events with their laws of coexistence and sequence."

In this second paper Mr. Doan deals specifically with the question of sanctions for a phenomenalist ethic. Idealistic systems of ethics in insisting upon absolute sanctions have failed to consider the psychology of the moral life; practical systems have compromised their cause by setting up prudential, non-moral sanctions. The plain man is certainly not conscious of absolute sanctions. He rules his conduct by what he recognizes as the satisfactions of his own experience. He admits error and blunder in his acts, not depravity and guilt. His moral world is experimental, not final.

From the point of view of human experience reality is constantly changing. It is "alive, pulsating in every organ, sweating at every pore." It has its richer and its poorer moments. "Nothing in this significant living world can be categorically fixed, embalmed as sacramental." As a sense of unity develops in an experience, that experience withdraws from the ferment of life. Psychologically the fundamental character of experience is its discreteness, its pluralism. "Corresponding to the plural constituents of experience in its cognitive aspect, there is a plural array of feeling tones." These feeling tones are the phenomenal sanctions of the moral life. "The value of the action and the worth of the being are measured by the kind and degree of emotive peace they import into the agent's organism." A situation is moral in proportion to the amount of volitional and emotional strain involved and the accompanying intensity of consciousness.

Cognitions, concepts, represent the "hard places" in experience. They serve as centers for action, bases for memory, imagination, anticipation. They "mitigate emotion." It is the feeling tone attached to concepts that makes them available for conduct. Action upon purely conceptual grounds is inconceivable. Feeling is the one aspect of experience that has infinitude. It becomes finite only when bound up with cognition. It is the core of feeling in a concept that gives us a sense of generality, of unity. The awareness of sameness depends on emotive satisfactoriness.

The larger moral concepts which serve as ideals, such as happiness, perfection, self-realization, work well in the actual moral life only so long as they focus concrete perceptual contents, "function through points of special happiness, plural perfections, and the like." The moral life is, therefore, emphatically pluralistic. The moral agent must be heroic or pessimistic; his experience can never be wholly unified. The curve of developing life may be plotted in terms of past experience, but never with entire certainty.

Mr. Doan's view of the emotional nature of the concept has been made familiar to us in much recent discussion. It is implied or stated by Professors James, Dewey, and Baldwin. The writer refers appre-

ciatively to Professor Kate Gordon's exposition of the subject. The reviewer, while sympathizing with Mr. Doan's general position, feels that in his effort to stress the functional pluralism of the moral life he has unduly neglected the even more important functional unifications of experience. And if "the kind and degree of emotive peace" are to be made the ethical sanction, it seems essential to estimate and analyze these "kinds and degrees," in order to avoid repeating, under a new terminology, John Stuart Mill's begging of the utilitarian question.

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The Cause of the Treppe. FREDERIC S. LEE. *The American Journal of Physiology*, April, 1907. Pp. 267-282. *The Action of Normal Fatigue Substances on Muscle.* FREDERIC S. LEE. *Ibid.*, October, 1907. Pp. 170-179.

Treppe is the name given by Bowditch to the familiar phenomenon of skeletal muscle, that with stimuli uniform in strength the later contractions are stronger than the earlier ones; a phenomenon which is probably very closely related to that which Exner has called *Bahnung*, and therewith to "summation" in general. Lee finds that "the treppe of skeletal muscle is due to the augmenting action on the muscle protoplasm of fatigue substances present in small quantity"; while if present in greater quantity, their effect is depressive. This "chemical theory of the treppe may be extended to the explanation of the mysterious process known as summation of stimuli. As applied in its usual sense to contractile tissues, the term means the phenomenon wherein a stimulus, too weak to cause a contraction when applied singly, becomes efficient when repeated. A sub-minimal stimulus may thus pass the threshold and become minimal and even supraminimal, . . . and it is generally acknowledged that the chemical changes of muscular activity occur, in large part at least, during the period of the excitatory stage rather than during the subsequent mechanical stage."

Since the augmenting action of fatigue substances occurs in both curarized and non-curarized muscles, there is no doubt that "fatigue substances act directly on the protoplasm of the muscle cells. This, however, leaves still open the question as to whether they may not also depress the substance of both nerve fibers and intramuscular nerve-endings." "With the central nervous system carbon dioxide is an undoubted product of activity, and there is no inherent improbability in its acting as a factor in making paths of conduction that have once been traversed more easy of subsequent passage." Sherrington, in his "Integrative Action of the Nervous System," states that temporal summation and *Bahnung* are exhibited by reflex-arcs in much higher degree than by nerve-trunks, and he ascribes this fact, for obviously good reasons, largely to the synapses of the reflex-arcs. It should seem that there are two causes for the summation of stimuli.

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JOURNALS AND NEW BOOKS

ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK. October, 1907, Band 131, Heft 1. *Nachruf auf Ludwig Busse* (late editor of the paper). *Über Atomismus und Mechanismus* (pp. 1-32): A. MÜLLER. — Though atoms are fiction, yet they are essential to our interpretation of nature; for atomism, in its general form, is the expression of the discontinuity of matter. Mechanism, a special form of atomism, is not the product of a special sense of motion, as Heyman maintains, but the expression of the theoretical possibility of reversing every movement. The practical impossibility of reversing any movement whatever is maintained, and this, with the movement towards electric and energetic interpretations of matter, points to the essential limitations of an atomistic interpretation of the world. But those limitations are best based on epistemological—Kantian—grounds. *Das Mass der Verschiedenheit* (pp. 33-49): E. MALLY. — The common use of the term difference is precisely expressed in the logarithmic measure of difference here demonstrated as universally applicable. *Bericht über die Erscheinungen der französischen philosophischen Literatur im Jahre 1903* (pp. 50-63): E. DUTOIT. — Most space is given to commendatory notices of Gailard's "L'étude des phénomènes au point de vue de leur problème particulier," Renouvier's "Le personalisme" and Sabathier's "La philosophie de l'effort." *Die historische Anarchie der philosophischen Systeme und das Problem der Philosophie als Wissenschaft. I.* (pp. 64-84): M. FRISCHEISEN-KÖHLER. — Philosophies are manifestly personal, not universal, and the only real science of philosophy is its history. *Rezensionen:* K. JOEL, *Der Ursprung der Naturphilosophie aus dem Geiste der Mystik*: R. HIRSCH. M. Dessoir und Paul Menzer, *Philosophisches Lesebuch*: A. MESSER. B. Otto, *Beiträge zur Psychologie des Unterrichts*: H. GOEBEL. E. Seilliere, *Appolo oder Dionysos*: B. WITTES. J. SCHULTZ, *Die Bilder von der Materie*: O. SIEBERT. H. Stephan, *Herders Philosophie*: G. JACOBY. J. Volkelt, *System der Ästhetik und Ästhetik des Tragischen*: STRECKER. H. Kleinpeter, *Die Erkenntnistheorie der Naturforschung der Gegenwart*: R. HIRSCH. T. Ziehen, *Leitfaden der physiologischen Psychologie in 15 Vorlesungen*: L. BUSSE. *Selbstanzeigen. Notizen. Neu eingegangene Schriften. Aus Zeitschriften.*

George Washington University Bulletin. Faculty of Graduate Studies Number, Vol. VI., No. 3, 1907. This number contains, among other articles, the following: The Kantian Basis of Agnosticism, by James Macbride Sterrett; The Limitations of Language in the Expression of Truth, by George Lansing Raymond; Notes on the Style of Seneca the Philosopher, by Charles Sidney Smith.

Hensel, Paul. *Rousseau.* Leipzig: B. G. Teubner. 1907. Pp. 118. 1 M.

Jacoby, Günther. *Herders und Kants Ästhetik.* Leipzig: Dürr'sche Buchhandlung. 1907. Pp. ix + 348. 5.40 M.

Kirn, Otto. *Sittliche Lebensanschauungen der Gegenwart*. Leipzig: B. G. Teubner. 1907. Pp. 122. 1 M.

Richter, Raoul. *Einführung in die Philosophie*. Leipzig: B. G. Teubner. 1907. 1 M.

NOTES AND NEWS

WE take the following extract from the *Nation* of December 5: "A new organ of the advanced theology in Germany has been established in the monthly called *Evangelische Freiheit*, edited by Professor O. Baumgarten, of the University of Kiel, and published by Mohr, in Tübingen. Its purpose is chiefly to show that liberal thought, because on a friendly footing with modern culture in general, is better able to supply the religious wants of our generation than orthodoxy possibly can do. Practically all the liberal university theologians of Germany are enrolled in its list of contributors. The publishing house of Mohr, which has within the last few years issued more than two hundred thousand copies of the booklets constituting the series of scholarly yet popular expositions of Biblical and religious problems known as the 'Religionsgeschichtliche Volksbücher,' now announces as supplementary to this series a new monthly journal called *Die Religion in Geschichte und Gegenwart*. This periodical is to be devoted to the discussion of religious questions from the modern point of view, and hence will give much attention to 'questions and doubts' that the readers suggest. A similar yet more conservative idea underlies the new quarterly review known as *Die Theologie der Gegenwart*, published by A. Deichert, of Leipzig. More conservative still is the new series called 'Flugblatt für Gebildete,' issued monthly by C. Bertelsmann, of Gütersloh, in the interest of Christian apologetics. Another new religious paper, *Die Dorfkirche*, which has made its appearance in Germany, has for its province the cultivation of the religious life of the German Protestant peasant, and the assistance of the pastors and teachers of the peasant villages in central and northern Germany in their difficult task of understanding the intellectual and emotional processes of the people to whom they minister. The editor, Hans von Lüpke, a pastor in Thalbürgel, Thuringia, declares that the missionary to the heathen is better equipped in the comprehension of the religious life and usages of foreign races by his university training than is the pastor of a peasant church for effective ministry in his country parish. Religious sentiments utterly strange to him appear in his congregation after years of labor among them, and he finds often, to his sorrow, that his efforts have been totally misconceived and that he has wrought injury where he hoped to bestow benefit. No observer of the German peasant will question the truth of this statement. The chasm between the *Bauer* and the city dweller is a wide one. A. l'Houet, author of the valuable 'Psychologie des deutschen Bauerntums,' is one of the collaborators in the new enterprize, whose progress may be watched with interest."

At the meeting of the Aristotelian Society on December 2, Professor R. Latta read a paper on "Purpose," of which the *Athenæum* of December 7 gives the following abstract: "As there are cases in which a person acts under the influence of an indefinite and growing purpose of which he becomes definitely conscious only at an advanced stage in his course of action, purpose, even in the psychological sense, can not be limited to what is clearly and definitely conceived by the purposing mind. Agency is an element in purpose, not merely in the sense of conscious agency, but in the sense in which an agent is regarded as a real system of conditions having a definite unity. The relativity of the scientific conception of things is not due to its being a product of conscious purpose, but is another way of saying that the conditions on which it depends have not been made fully explicit. We find purpose in things in proportion as we find in them systematic unity. A thing has a purpose in so far as it is a unity of conditions in a system, in so far as it has individuality and is not a separate and colorless element. The mechanical point of view excludes purpose, because it abstractly considers part in relation to part, leaving the whole out of account. The special characteristic of self-conscious purpose is the indissoluble unity of end and means—a unity which is less complete in organic and quasi-organic systems. The typical form of purpose is self-conscious purpose, but the tendency to dissociate this from other forms of purpose and to treat it as a peculiar phenomenon is to be deprecated. Purpose involves selection, but selection presupposes system, and free selection is not arbitrary, but rational, selection."

THE seventh annual meeting of the American Philosophical Association was held in Goldwin Smith Hall at Cornell University, Ithaca, N. Y., on Thursday, Friday and Saturday, December 26-28, 1907. There was an afternoon session on Thursday, a morning and afternoon session on Friday, and a morning session on Saturday. On Friday evening the Association was welcomed by President Schurman, of Cornell University. His address was followed by the address of the president of the Association, Professor H. N. Gardiner, of Smith College, on "The Problem of Truth." The session on Saturday morning was devoted to a discussion on "The Meaning and Criterion of Truth," led by Professors James, Creighton, Bakewell, Hibben and Strong. Among the social features of the meeting were a smoker at the Town and Gown Club, on Thursday evening, and a reception given by President and Mrs. Schurman, at their home, on Friday evening, after the address of welcome. Luncheon was served to members of the Association at Sage College on Friday and Saturday. The business session of the Association was held on Friday afternoon, at which officers for the ensuing year were elected as follows: President, Professor Hugo Münsterberg, of Harvard University; Vice-president, Professor W. P. Montague, of Columbia University; Secretary-treasurer, Professor Frank Thilly, of Cornell University; members of the Executive Committee, Professor Ernest Albee, of Cornell University; Professor Charles M. Bakewell, of Yale University; Professor Herbert G. Lord, of Columbia University, and Professor Ralph Barton Perry, of Harvard University.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE THIRTEEN PRAGMATISMS. II.

THE purpose of this paper, as indicated at the beginning of the former instalment, is to discriminate all the more important doctrines going under the name of pragmatism which can be shown to be not only distinct, but also logically independent *inter se*. Three such divergent pragmatist contentions have thus far been noted. "Pragmatism" was primarily a theory concerning the "meaning" of propositions; but this theory, because of a latent ambiguity in its terms, breaks up into two: (1) The meaning of a proposition consists in the future consequences in experience which it (directly or indirectly) predicts as about to occur, no matter whether it be believed or not; (2) The meaning of a proposition consists in the future consequences of believing it. The first of these was seen to suggest (though it by no means necessarily implies) the third variant of pragmatism, namely, a doctrine concerning the nature of truth; viz., that the truth of a proposition is identical with the occurrence of the series of experiences which it predicts, and can be said to be known only after such series is completed. "Its truth is its verification." This contention, that judgments acquire truth only in the degree in which they lose predictive character and practical bearings, has been shown to be wholly barren and useless, since it affords no answer to the real epistemological question concerning the criterion of the truth of propositions whose specific predictive implications have not yet been experienced.

4. It is, however, not difficult to see through what associations of ideas some pragmatists have been led to emphasize this notion of the *ex post facto* character of all truth. Largely, it would appear, it derives its plausibility from its resemblance to the ordinary empirical doctrine that those general propositions are to be regarded as true which, so far as they have been applied, have been found to be realized in past experience. This latter doctrine, from which the former is often not clearly distinguished, may be set down as another of the things that pragmatism is frequently supposed to be. It is the doctrine sometimes sententiously expressed by the observa-

tion that those propositions are true which "will work" or "which you can live by." What the evolutionary empiricists who are fond of this observation almost always really mean by it, is that those judgments are true which hitherto *have* worked; in other and more precise words, that I am, in advance of the actual realization or verification of the future experiences which may be predicted by a given judgment, entitled to regard it as true if it is *similar* to, or is a special application of, a general *class* of judgments which my memory tells me have thus far had their implied predictions realized. But this is by no means identical with the principle mentioned in the preceding instalment, and vigorously insisted upon by some pragmatists, that each *individual* judgment can *become* true only through, and contemporaneously with, the presentation in consciousness of those specific subsequent experiences which it points to and prognosticates.

5. If, now, we are to set down this evolutionary empiricist criterion of truth as one expression of pragmatism—at least as that is popularly understood—it is necessary to add that this formula, too, suffers from ambiguity, and therefore breaks up into two quite distinct criteria. The ambiguity is analogous to that already pointed out in the pragmatist's theory of meaning. A belief may "work" in two very different senses, either by having its actual predictions fulfilled, or by contributing to increase the energies or efficiency or chance of survival of those who believe it. The Jews, for example, believed persistently for many centuries that a national Messiah would come in the next generation to restore the independence and establish the supremacy of Israel. In one sense, this belief did not work; for the events which it predicted did not occur. But biologically considered it worked wonderfully well; for it assuredly did much to produce the extraordinary persistency of the Jewish racial character, and the exceptional energy, self-confidence, and tenacity of purpose of the individual Jew. Many beliefs involving false predictions are biologically unfavorable, namely, if they lead to physical conduct ill adapted to the conditions of the believer's physical environment. You can not "live by" the belief that fire will not burn. But, also, some false or never-realized predictions, and many beliefs having apparently no predictive character—and no capacity for empirical verification—have shown themselves to be excellent things to live by. And if we are to take the doctrine that the true is the "livable" in its second and more unquestionably pragmatistic sense—if we are to identify the validity of beliefs with their biological serviceableness—we should apparently have to classify as "true" many judgments which pre-

dict nothing, and many which confessedly predict what is not going to occur.

6. Partly, however, what I have called the theory of the *ex post facto* nature of truth is a somewhat blurred reflection of a certain metaphysical doctrine, which, although not always very explicitly put forward, appears to me to have a rather fundamental place in the characteristic mode of thought of most representatives of pragmatism. This is the doctrine of the real futurity or "open-ness" of the future, and of the determinative or "creative" efficacy of each "present" moment in the ever-transient process of conscious judgment, choice, and action. The two parts of the doctrine obviously enough go together: if the process truly brings into being at each new moment a genuinely new and unique increment of reality, then, so long as any moment's increment has not yet been brought forth, it can not yet be called in any intelligible sense real; and if, similarly, the thing that is to be is a sheer nonentity until it enters into actual, temporal experience, the moment in which it becomes an experience must be credited with the creation "*ex nihilo*" of a new item of being. This doctrine of what M. Bergson calls a *devenir réel*, and of the creative function of consciousness, which is the pregnant ontological preconception from which a great variety of confused pragmatistic ideas have proceeded, unquestionably has certain epistemological implications. Such a metaphysics appears to imply the partial contingency and (from the standpoint of any "present" knowledge) indeterminateness of the future content of reality. But these implications are not synonymous with the *ex post facto* theory of truth in the generality with which that has usually been expressed. The future may be—and by the same pragmatists, when they adumbrate this sort of metaphysics, apparently is—regarded as presenting to our understanding only a narrow margin of the unpredictable; its general character, and the greater mass of its content, may be supposed, without departing from the conception in question, to be predetermined by the accumulated and crystallized results of reality up to date, of which any possible future and novel increment of being must be the child, and to which it must be capable of accommodation. And at all events, there is nothing in this sort of thoroughgoing metaphysical temporalism which justifies the denial of the possibility of the making of "true" judgments about contemporaneous or past (but not yet consciously verified) realities.

7. It is a frequently repeated observation of pragmatists, in moments when they are more mindful of the psychological than of the metaphysical antecedents of their diversely descended conceptions, that the true, in its most generalized character, is "the satis-

factory"; it is, says James, that which "gives the maximal combination of satisfactions." Or, in Perry's careful formulation—with an amendment which we have recently been told, upon good authority, would make it entirely acceptable to a pragmatist—"the criterion of the truth of knowledge is the satisfying character of the practical transition from cognitive expectation to fulfillment, or the resolution of doubt into practical immediacy."¹ Now this doctrine which identifies the truth with the satisfactoriness of a given judgment may mean any one of three things. It may, in the first place, be a simple psychological observation—from which, I fancy, few would dissent—indicating the *genus* of feelings of which the "emotion of conviction" is a species. To doubt, to inquire, to have before the mind certain potential material of judgment that is not yet accepted as true, is, of course, to experience dissatisfaction; a specific sense of discomfort and of non-fulfillment is the emotional concomitant of the doubting or the deliberative moment, and is doubtless the principal spring which prompts men's search for truth. And to believe, to hold true, whatever more it may be, is always at least to be satisfied in some degree with one's mental content of the moment, to find it good, or at all events not so bad as some contrary judgment which, for its sin of insufficient satisfyingness, has been shut away into the outer darkness of non-acceptance.

8. But this psychological truism, that to pass from doubt to belief is to pass from dissatisfaction to a relative satisfaction, is quite a different thing from the first of the pragmatist epistemological contentions that appear to be based upon it. This asserts that the way to determine whether a proposition is true is to apply the test of "satisfyingness"; and to apply it directly and *simpliciter*. There is, according to this version of the nature of truth, to be no attempt to determine the differentia which distinguishes the species "conviction" from the genus "satisfaction," or the subspecies "highest discoverable type of certitude" from "conviction" in general; and there is to be no arranging of satisfactions in a hierarchy and no pretension to define the conditions under which a maker of rational judgments *ought* to be satisfied. From many expressions of pragmatist writers it would appear that, while the term "satisfaction" is "many dimensional," one dimension is as good as another; and that the final and decisive warrant for belief—the mark of the valid judgment—is the capacity of the judgment to yield the maximum bulk of satisfaction, measured indifferently in any of its dimensions. But since the dimensions *are* many, it may manifestly turn out that the greatest total volume may not give the potential maximum of any given dimension taken singly. The liking

¹ A. W. Moore, in this JOURNAL, Vol. IV., p. 576.

for luminosity of meaning, or for conceptual consistency, or for completeness of empirical verification, may fail to get full satisfaction in a judgment; but the judgment may, it would seem, still be "true," if it compensates for these limitations by a preponderant satisfactoriness with reference to other desires or interests: by its congruency with our habitual ways of belief, or its charm for the imagination, or its tendency to beget a cheerful frame of mind in those who accept it.

I think it possible that some pragmatists may at this point protest that they know of no one who seriously holds this view; certainly, it appears to me to be a curious view to hold. But I think one is justified in calling upon all of the name who reject this doctrine to take (and faithfully observe) an oath to abstain from a fashion of language which they have much affected; to refrain from identifying the true with the satisfactory *simpliciter*, to cease speaking of satisfaction as a "*criterion*" of validity, and to confine their assimilation of the two concepts to the much more qualified and commonplace thesis which follows.

9. This is pragmatism number seven *plus* a more or less explicit admission that our "theoretic" satisfactions have a special character and special epistemological pretensions; that our "intellectual" demands—for clear meanings, for consistency, for evidence—are *not*, and can not be, satisfied, unless their peculiar claim to precedence in the determination of belief is recognized; and that this claim is a legitimate one, to which men should (though they often do not) subordinate their impulse to accept any conclusions that have any kind of satisfactoriness. According to this view, "satisfaction" is still insisted upon as an essential mark of the apprehension of "truth"; but it is precisely a satisfaction which is not to be had except upon condition that other possible satisfactions be ignored or, in many cases, flatly rejected. Between this and the preceding (eighth) doctrine some pragmatist writers seem to waver. James, for example, often uses expressions (some of which have been quoted in the two foregoing paragraphs) implying the doctrine of the commensurability and equivalence of all satisfactions. But he elsewhere (*e. g.*, in a controversy with Joseph in *Mind*, 1905) expressly distinguishes the "theoretic" from the "collateral" satisfactions connected with the processes of judging thought; and he does not appear to deny that the former may conflict with the latter, or that, in the event of such conflict, they ought to be preferred. To the objection, offered by his critic, that if such admissions be made the pragmatist's criterion of validity is not practically distinguishable from the intellectualist's, James opposes nothing more relevant than a sketch of the genesis and evolution of the demand of the human mind for

consistency.² This sketch purports to show—if I understand it—that the desire (more characteristic of some minds than of others) to avoid self-contradiction is historically engendered through the crystallization of repeated experiences of uniformity in “things” into fixed subjective habits of expecting specific uniformities—habits so fixed that when such an expectation is disappointed “our mental machinery refuses to run smoothly.” How the transition from the idea of uniformity to that of consistency is accomplished here, remains obscure to me; but even supposing the evolution of the one into the other to be completely and convincingly traced, these interesting historical speculations do not show, they do not even tend to suggest, that the demand for consistency in our judgments, as we now find it—playing its captious and domineering role among our mental cravings—is not quite distinct from all its fellows and their rightful, though their often flouted, overlord. In the present sense, then, the pragmatist’s criterion of truth, whether right or wrong, seems entirely destitute of any distinctive character; it is simply the old, intellectualist criterion, supplemented by the psychologically undisputable, but the logically functionless, remark that, after all, a “theoretic” satisfaction is a kind of satisfaction.

10. Another pragmatism, and one that undoubtedly has real epistemological bearings, is the doctrine of radical empiricism conjoined with the doctrine of the necessity and legitimacy of postulation; the doctrine, in other words, that “axioms are postulates” and that postulates are as valid as any human judgment ever can be, provided they be the expression of a genuine “practical” need. This may look like our eighth kind of pragmatism over again, expressed in other terms; but in certain important particulars it is really a distinct theory. It contains, in the first place, a special negative contention: namely, that there are no strictly compulsive or “necessary” general truths, no universal propositions that can force themselves upon the mind’s acceptance apart from an uncoerced act of voluntary choice. And on its positive side, it identifies the true, not with those judgments which slip so easily into the mind that they afford a present emotional state of satisfaction, but with those that man’s active nature requires as working presuppositions to be followed in its reaction upon present experience and its instinctive endeavor to shape future experience. This doctrine seems to me to be quite unequivocally expressed by Schiller in a well-known essay in “Personal Idealism.” “The ‘necessity’ of a postulate,” we are told, “is simply an indication of our need. We want it, and so must have it, as a means to our ends. Thus its necessity is that of intelligent, purposive volition, not of psychical, and still less of physical,

² *Mind*, N. S., Vol. XIV., p. 196.

mechanism." "Behind the 'can't' there always lurks a 'won't'; the mind can not stultify itself, because it will not renounce conceptions it needs to order its experiences. The feeling of necessity, therefore, is at bottom an emotional accompaniment of the purposive search for means to realize our ends."³

11. A kindred but a much less thoroughgoing doctrine seems to constitute one of the pragmatisms of James. The author of "The Will to Believe" would, I suppose, still vigorously deny the possibility of reaching "necessary" conclusions with respect to many issues, including some of the greatest importance in relation both to the purely utilitarian requirements of our living and to our higher interests; and he would, clearly, still maintain the propriety and the practical inevitableness of voluntary postulation in such cases. But that there are *some* truly coercive and indubitable truths, some items of *a priori* knowledge inhering in the native constitution of a rational mind, James pretty fully and frankly declares, in his recently published volume of lectures. "Our ready-made ideal framework for all sorts of possible objects follows from the very structure of our thinking. We can no more play fast and loose with these abstract relations than we can with our sense experiences. They coerce us; we must treat them consistently, whether or not we like the results."⁴ This, obviously, is no doctrine that axioms are postulates, or that behind every "can't" there lies a "won't"; it is the doctrine that axioms are necessities and that the action of voluntary choice in belief is always limited by a permanent system of *a priori* principles of possibility and impossibility inhering in the nature of intellect, at least as intellect is now evolved. It is compatible, at most, with the opinion that there are not so numerous, nor so useful, axioms as some dogmatic philosophers have supposed, and that, when axioms fail us, postulates must in many cases be resorted to.

12. A point of pragmatist doctrine separable from (though not inconsistent with) either of the two last mentioned, is the assertion of the *equal* legitimacy of those postulates (such as the uniformity of causal connection, the general "reliability" of nature, and the like) which appear indispensable as presuppositions for effective dealing with the world of our physical experience, and of those which, though lacking this sort of "physical" necessity as completely as they do the logical sort, yet seem demanded in order to give meaning to, or encouragement in, men's moral strivings, or to satisfy the emotional or esthetic cravings of our complex nature. It is conceivable enough that some pragmatists should refuse to recognize the equal standing of these two classes of postulates, should

³ Schiller, "Axioms as Postulates," § 11, in "Personal Idealism."

⁴ James, "Pragmatism," p. 211.

accept the first while rejecting the second; and it is a fact that not all who find a place for both agree as to the number and range of the second sort. The more extremely liberal forms of the doctrine of the right to postulate freely and to treat postulates as truths, tend to lapse into identity with the eighth variety of pragmatism, which identifies the true with the "maximally satisfying"; but in its more cautious and critical forms, the argument from the practical inevitableness of certain scientific to the legitimacy of certain ethico-religious postulates must be regarded as a distinct type of pragmatist epistemology, and perhaps the one which—if pragmatism ought to have practical bearings—best deserves the name.

13. Lastly, there remains a second pragmatist theory of the *meaning* of concepts or judgments—which brings us back to the topic, though by no means to precisely the doctrine, with which our enumeration began. It may be expressed thus: an essential part of our idea of any object or fact consists in an apprehension of its relation to some purpose or subjective interest on our part; so that no object of *thought* whatever could be just what, for our thought, it is, except through the mediation of some idea of purpose or some plan of action. The language of some pragmatist writers might lead one to suppose that they consider the *whole* meaning to be reducible to this teleological reference; but such a view does not seem to me intelligible, and it does not appear certain that any one really intends to maintain it. But it is evident that there are several logicians who think it both true and important to declare that a relation to a purpose constitutes an intrinsic and a determinative element in the connotation of any notion. It is, I suppose, such a principle that Moore intended to illustrate in recently pointing out that, however objective the virtues of a given candidate for office may be, he could neither be "clean" nor a candidate were there not present in the mind of every one so representing him the idea of possible voting to be done. And I suppose the same view is, in part, at least, what Schiller has sought to enforce in these columns, in insisting that nobody can be "lost" except with the aid of the existence in the universe of some purpose in some mind, requiring the presence of the "lost" person (or of the persons from whom he is lost) in some place or relation from which he is (or they are) excluded by virtue of his "lostness."⁵ Schiller appears to me to have entangled this theory of meaning in a confusing and illegitimate manner with questions about "truth" and "reality"; but to pursue this distinction would involve a somewhat long and complicated analysis, which may not here be undertaken.

These thirteen pragmatisms have been set down, not in a topical

⁵ This JOURNAL, Vol. IV., p. 42, and pp. 483, 488.

order, but according to the leading of those associations of ideas through which the ambiguities of the several doctrines, and the transitions from one to another, become relatively intelligible. But it may be useful to arrange them here in a more logical manner, while still retaining the original numbering. Those forms of theory, the separate enumeration of which results from distinctions made by this paper, but overlooked by pragmatist writers themselves—in other words, the doctrines formulated by pragmatists in more or less equivocal terms—are indicated by the sign (*a*); each group of doctrines hitherto improperly treated as single and univocal has a common superior number:

I. *Pragmatist Theories of Meaning.*

1. The “meaning” of any judgment consists wholly in the future consequences predicted by it, whether it is believed or not (*a*¹).

2. The meaning of any judgment consists in the future consequences of believing it (*a*¹).

13. The meaning of any idea or judgment always consists in part in the apprehension of the relation of some object to a conscious purpose (*a*¹).

II. *Pragmatism as an Epistemologically Functionless Theory concerning the “Nature” of Truth.*

3. The truth of a judgment “consists in” the complete realization of the experience (or series of experiences) to which the judgment had antecedently pointed; propositions *are* not, but only *become*, true (*a*²).

III. *Pragmatist Theories of Knowledge, i. e., of the Criterion of the Validity of a Judgment.*

4. Those general propositions are true which so far, in past experience, have had their implied predictions realized; and there is no other criterion of the truth of a judgment (*a*²).

5. Those general propositions are true which have in past experience proven biologically serviceable to those who have lived by them; and this “livableness” is the ultimate criterion of the truth of a judgment (*a*²).

7. All apprehension of truth is a species of “satisfaction”; the true judgment meets some need, and all transition from doubt to conviction is a passage from a state of at least partial dissatisfaction to a state of relative satisfaction and harmony (*a*³).—This is strictly only a psychological observation, not an epistemological one; it

becomes the latter by illicit interpretation into one of the two following.

8. The criterion of the truth of a judgment is its satisfactoriness, as such; satisfaction is "many dimensional," but all the dimensions are of commensurable epistemological values, and the maximum bulk of satisfaction in a judgment is the mark of its validity (a^3).

9. The criterion of the truth of a judgment is the degree in which it meets the "theoretic" demands of our nature; these demands are special and distinctive, but their realization is none the less a kind of "satisfaction" (a^3).

10. The sole criterion of the truth of a judgment is its practical serviceableness as a postulate; there is no general truth except postulated truth, resulting from some motivated determination of the will; "necessary" truths do not exist.

11. There are some necessary truths; but these are neither many nor practically adequate; and beyond them the resort to postulates is needful and legitimate.

12. Among the postulates which it is legitimate to take as the equivalent of truth, those which subserve the activities and enrich the content of the moral, esthetic, and religious life have a coordinate place with those which are presupposed by common sense and physical science as the basis of the activities of the physical life.

IV. *Pragmatism as an Ontological Theory.*

6. Temporal becoming is a fundamental character of reality; in this becoming the processes of consciousness have their essential and creative part. The future is strictly non-real and its character is partly indeterminate, dependent upon movements of consciousness the nature and direction of which can be wholly known only at the moments in which they become real in experience. (Sometimes more or less confused with 3.)⁶

Each pragmatism of the thirteen should manifestly be given a name of its own, if confusion in future discussions is to be avoided. The present writer has neither the necessary ingenuity nor the ambition to devise a nomenclature so extensive. But however the several theories be designated, the fact of their difference, and of the incompatibility of some of them with some others, can hardly, just now, be too much insisted upon—in the interest of pragmatism itself. What the movement commonly so named most needs is a clarification of its formulas and a discrimination of certain sound and important ideas

⁶ It is impossible to bring out the nature, motives, and reciprocal relations of dependence or incompatibility of these theories in any such condensed formulas. I hope no reader will attempt to take the above recapitulation as a substitute for the analytical discussion contained in the preceding paragraphs.

lying behind it from certain other ideas that are sound but not important, and certain that would be important if only they were not unsound. The present attempt to list the chief varieties, and to clear up the hidden ambiguities, of a doctrine nominally one and indivisible, is accordingly offered as a species of *Prolegomena zu einem jeden künftigen Pragmatismus*.

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DISCUSSION

SUB SPECIE ÆTERNITATIS

IT is worth while for philosophers to ask themselves whether the questions they are talking about are vital and significant, or the opposite. The article by Dr. Bush in a recent number of this JOURNAL raises the question in an interesting form. He there maintains that the significant, the live problems of philosophy do not concern timeless truth, or any reality "sub specie æternitatis," but have to do with straightening out the tangles of this our ever changing human experience. When philosophers take over ancient problems which arose in other ages of culture and life, and deal with them as if they were the really pressing problems of philosophy, they are dealing only with "secondary," defunct problems. Their task is no longer vital.

There is certainly much in this essentially pragmatic treatment of the great historic problems of metaphysics to commend it to our overpragmatic culture. Yet we may well hesitate to accept the doctrine completely.

Suppose we turn from the questions of metaphysics to those of science. Now I take it that a scientist believes that he is getting at the veritable constitution and structure of some sort of "reality." His problem arises because the reality presented to his experience can not be made to square with some system of concepts previously accepted as valid, in other words, because it can not be completely rationalized. And we are here interested in pointing out that the problems of science which arose in former periods of culture are not meaningless or insignificant to-day. Their formulation may have been inadequate because less was then known about that reality—"that experience," if you please—which set the problems then, and still sets them.

Moreover, the scientist believes that *while the reality studied may be subject to flux and development, yet the system of truths about*

that reality is eternally true. Thus, the physicist learns what matter eternally is, not in the sense that there is any piece of matter which eternally is, but that the truth about matter, about its structure, its transformations, its decay, perhaps, is itself a timeless truth. This holds good, too, for a Herbartian realist as well as for a Berkeleyan idealist.

And so the scientist thinks to get at truth which is not merely a temporary thought structure, devised to straighten out a tangled situation. The true propositions and laws which he arrives at are meant to be true "*sub specie æternitatis*." And, as a fact, to say that anything is true "*sub specie æternitatis*" is only another way of saying that it is universally and timelessly true. However fleeting and changing a fact, or substance, or reality may be, yet if you can only identify it as an individual fact, hold it fast in thought and definition, any assertion about its change and its decay is itself a timeless assertion.

What has this to do with philosophy? Simply this: The philosopher, too, is interested in the structure of a *real* world; at least in the world of human experience, and in the *setting*, the *background*, the *environment* of that experience; whatever he can find out about human experience, or about its conditions, or its fate, he must of necessity think of as *timeless truth*, though it be truth about a *changing* world.

For, to be sure, *our* experience, *our* institutions, *our* demands are *our* own, different from those of yesterday, and our philosophy, our *ethics*, must be different from the philosophy of yesterday. Does this mean, then, that philosophy has nothing to do with eternal truth? Far from it. It means two things: First, though experience changes, flows on, develops, yet the truth about any situation, any crisis, yes, any feature of experience, is itself timeless truth, true "*sub specie æternitatis*." Secondly, the endeavor of philosophy should be to read *all* of human experience "*sub specie æternitatis*," to tell the whole significant story, and to grasp in one view the entire change. Such an endeavor may be vast, impossible; yet it is not meaningless, nor is the problem "*secondary*."

Two aids are at hand for thus getting a philosophy which can rightfully claim to be a philosophy "*sub specie æternitatis*": (1) A philosophy of history, which may hope to see the continuity of human ideals and values—to see the place of each significant crisis in human experience. (2) A complete logic, which may hope to see the continuity of all scientific categories—yes, of all categories which are present whenever one thinks at all.

One may, I think, reasonably hope to see, then, both in the *ethical*, *social*, and *historical sciences* and in the *logical* and *epistemo-*

logical sciences, a philosophy which is true "sub specie æternitatis," though it deals with human experience, with social and ethical institutions, ideals, crises, and tangles.

The problems of philosophy are more than historical episodes—critical junctures in the "developing situation" of a given culture epoch. They are that, but they are also more. They get their sting and vitality from no merely historical situation; their significance does not cease in a different historic epoch. The typical human experiences summed up and crystallized in any one of the *permanent* human interests do not *wholly* change. The *form* of the experience, and hence of the problem, remains constant. Likewise, the complete answer, always sought for, would be in the shape of a proposition whose truth is not subject to time. Let us say, if we will, that such problems are insoluble, such truth for the most part inaccessible (that it is not wholly so *vide* mathematics and logic), but to say this is not to relegate them to a realm of secondary and idle problems.

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SOCIETIES

SECTION OF ANTHROPOLOGY AND PSYCHOLOGY OF THE NEW YORK ACADEMY OF SCIENCES

REPORT OF THE SECRETARY

A JOINT meeting was held with the New York Branch of the American Psychological Association on November 25, 1907. An afternoon session was held at the psychological laboratory of Columbia University, and an evening session at the American Museum of Natural History. The Section nominated to the Council of the Academy the following as its officers for 1908: Chairman, Dr. Adolf Meyer; Secretary, Professor R. S. Woodworth.

Professor E. L. Thorndike reported some work on "Memory for Paired Associates," in which he has found that German-English vocabularies can be learned with a speed far in excess of what is regarded as possible in the usual teaching of a foreign language, and retained much better than would be expected from the results of Ebbinghaus on nonsense material.

Mr. G. H. Betts, in studying the "Correlation of Visual Imagery with College Standing," has been unable to detect any positive correlation. The relation seems to be a purely chance one.

Dr. E. W. Scripture described a method used in "Experiments

on the Subconsciousness, with Demonstration of Jung's Method of Detecting Emotional Complexes." After mentioning his own early experiments on the association of ideas, the speaker described some work he had lately done with Dr. Jung in the Psychiatric Institute at Zurich, in which, following Jung's method, the subject gives associates with given words; the time is taken, and the subject is also required afterwards to repeat his former associations from memory. The presence of an emotional complex is indicated by slowness, forgetfulness, superficiality or unusualness of associates, etc. The emotional complexes so revealed are often causes of mental depression, anxiety, excitability, neurasthenia, and hysteria. Contrary to Jung, the speaker did not believe them causes also of *dementia precox*.

Dr. Scripture also demonstrated a method for the "Detection of the Emotions by the Galvanometer." The subject held his hands on large plate electrodes, and after the beam reflected from the mirror of the galvanometer had come to rest, emotions aroused in the subject would cause deflection. Reviewing the original discovery of Tarchanoff and the recent work of Peterson and Jung, the speaker concluded that the cause of the deflection lay in increased activity of the sweat glands.

Dr. J. Carleton Bell reported his experiments on the "Effect of Suggestion upon the Reproduction of Triangles and of Point Distances." The subject was required to reproduce the height of a given triangle, for instance, in the presence of figures higher or lower than the required height. In the first third of the experiments each of the six observers gave evidence of being influenced by both high and low suggestion, the low being the more effective. There were striking individual differences in the susceptibility to suggestion. As the experiments proceeded, the observers seemed to become habituated to the suggestion, so that the effect grew less and less marked.

Professor F. L. Tufts described his "New Spectrophotometer for the Study of Color Vision." The problem of determining the relative luminosity of lights of differing color is fraught with difficulty. Three methods have been used, but as they do not give perfectly concordant results, each depends on its own definition of what shall be regarded as equal luminosity. The three definitions are the following: (1) Two similar surfaces, illuminated by two lights of different color, may be said to be of equal luminosity if, in the judgment of the observer, they appear equally luminous. (2) Two similar surfaces, white, with black markings on them, illuminated by two lights of different color, may be said to be of equal luminosity if, when placed at the same distance from the eye, the details can be distinguished with the same minuteness. (3) Two similar surfaces,

illuminated by two lights of different color, are said to be of the same luminosity if, on rapidly replacing one by the other before the eye, there is no sensation of flickering. The author has modified the flicker photometer of Rood so as to use spectral colors. A white disk, rotating between the telescope and the prism of a spectroscope, is cut away for half of its circumference, so as to admit the colored ray from the prism for half of the time, while for the other half it reflects white light from a lamp the distance of which is adjustable along a photometer bar. By moving the lamp along the bar a point is found at which there is no flicker between the white and the colored lights. In this way the luminosity of different parts of the spectrum can be determined with reference to a given white. The relative luminosity of different parts of the spectrum was not changed by fatiguing the eye to one color. Though the eye be fatigued to green by several minutes' exposure to it, so that gray objects appear purple, yet the green of the spectrum has the same luminosity relatively to the other parts of the spectrum as when the eye is fresh. (An exception must be made to this statement, in the case of prolonged exposure to *red*; if this exposure is not simply long enough to give the complementary after-image, but is continued for a considerable number of minutes, the effect is to displace the point of maximum luminosity towards the violet.) This seems good evidence of the separateness of the luminosity and color senses. Another fact bearing in the same direction is that the luminosity curve of red-green blind eyes shows no constant deviation from the curve for normal eyes. The color-blind eyes so far examined do indeed show luminosity curves differing from that obtained from the majority of normal eyes, but the deviations are in some cases in one direction, in others in the opposite; and some eyes which are apparently normal in color vision have similar deviations from the curve obtained from the majority.

Professor J. McKeen Cattell reported an observation on "The Entoptic Fovea." The usual method of demonstrating the fovea entoptically, by looking through a blue glass or a chrome alum solution, fails with many individuals. But if the glass is removed after a few seconds, an after-image effect shows the fovea clearer than the background; and this is more readily seen than the effect while the blue screen is before the eye. The explanation of the effect is probably that the yellow spot absorbs much of the blue light, so that that part of the retina is less fatigued than the surrounding region.

Dr. Frederic Lyman Wells, under the title "The Tapping Test," communicated a study of the maximum rate of repeated voluntary movements during and at the limit of practise in one normal individual, with comparative reference to the performance in other

normal and in pathological subjects. The maximum rate has little, if any, relation to subjective feeling of efficiency. The practise curve shows less diurnal variation in its earlier than in its later stages. The general effect of practise from day to day is to increase initial efficiency, while the general effect of the "warming up" in a single day's work is to give relative immunity to fatigue. As a psychological measure, the maximum tapping rate is of little importance compared with the curve of the fatigue losses. The general interpretation of the tapping test is as yet far from clear; most of its phenomena, however, are probably of nervous rather than muscular origin.

Professor W. M. Wheeler gave an illustrated lecture "On Some Vestigial Instincts in Insects," in which he gave many instances of the reappearance, under unusual conditions, of instincts which had been active ancestrally, but had disappeared. An instinct which seems dead in the species may thus be resuscitated and serve a useful purpose.

Professor W. P. Montague read a paper on "The Addition of Intensities," in which he maintained that intensities are true quantities, since they are susceptible not only of the relation of more and less, but also of the relation of whole and part. The component parts of an intensive quantity are synthesized by "superposition," and not, as in the case of extensive quantities, by "juxtaposition." It is usually supposed that intensive quantities are simple and without parts. This misconception results from a failure to see that superposition is as truly an additive synthesis as is juxtaposition. The paper gave examples of the addition of several types of intensities, such as velocity, density, temperature and pain. The fundamental rule for the addition of intensities is: So combine the quantities as to keep the extensive factors of the whole equal to the extensive factors of each of its parts. For example, if two densities are to be added, the volume of the sum must be equal to the volume of each of the components. This could only be accomplished by superposing one volume upon another in such a way as to make them interpenetrate. The rule for adding intensities has its analogue in the rule for adding extensive quantities, according to which we are bidden to combine the quantities in such a way as to keep the intensive factors of the whole equal to the intensive factors of each part.

Professor D. S. Miller spoke on "Applied Philosophy and Applied Psychology," devoting himself mainly to the consideration of the various psychological methods by which habit and character can be altered. He mentioned, among such methods, practise, hypnotic suggestion, and attraction.

R. S. WOODWORTH,

Secretary.

REVIEWS AND ABSTRACTS OF LITERATURE

Structure and Growth of the Mind. W. MITCHELL. London: Macmillan & Co. 1907. Pp. xxxvi + 512.

In writing the present volume the author has had in mind the needs of the lecturer on philosophy. Where difficult matters are to be treated of it is desirable to put into the hands of the student some treatise which can be taken as the topic for elucidation and discussion. The author believes, moreover, that psychology is the proper introduction to philosophy, since it transforms common sense, leads into the central problems of metaphysics, and supplies necessary data for logic, esthetics, education, medicine, and neurology. The present volume is thus designed to be a text-book, an "introduction with reference to psychology." Now it may be said at once that its style forbids its use except by the most advanced and patient students. Accustomed to the dreariness and obscurity which commonly prevail in the field of epistemology, one is at first inclined to hold the subject-matter accountable. But this would scarcely explain the undeniable dreariness and obscurity of the preface. Even what the reviewer has gleaned concerning the plan and scope of the book has cost him hard study; and he is by no means certain of his conclusions. Pronouns rarely refer to anything that still lingers in the memory of the reader, so that it is almost invariably necessary to retrace one's steps and grope for the context. Furthermore, there is no contour or difference of emphasis, so that reading the book is like swimming under water with never a chance to come up and look about. And the style is *really* regrettable because the book is worth reading.

The body of the book is taken up with what the author calls "the direct explanation of mind," as distinguished from the indirect or physiological explanation, which receives only a single chapter at the end. Part I. serves as a general introduction, and contains the essentials of the author's general theory of mind. We shall confine our critical remarks to this portion of the book. Materialism and monism agree, the author holds, in affirming that mind and brain do not interact, and in aiming to make the physical explanation complete in its own terms. Neither of these theories, and dualism much less, can object to a similar attempt to explain mind in *its* own terms. But such explanation is possible because mind as such grows and has structure. One hesitates to treat the mind as a thing only because "thing" is commonly supposed to signify inherence of attributes in a transcendent essence. When we understand that a thing is "the system of its attributes" and that it is absurd to look for anything that is not actual or possible object of knowledge, we discover that mind is in fact the primary thing. Physical things turn out to be "abstractions in a way that mind is not." "Nature is reality as it is presented to sense, and, in order to deal with it as an independent system, we abstract from its relation to sense." Not troubled by the absurdity involved in this proposition, the author proposes to improve upon dualism and parallelistic monism by the following generalization: "A mind and its experiences are realities that are presentable to sense

as the brain and its actions. In that respect the mind and experience are not parallel with nature, but a part of it. And, on the other hand, the facts of nature, including the brain, whenever they are phenomena, are not parallel with mental phenomena, but part of them." But here is parallelism returning with seven other devils. For what is the relation between the system of things presentable to sense and the system of experience internally viewed? Why should the mind and its experiences be presentable to sense as the brain and its actions? Why should the visual experience of the blue sea be presentable to sense as a cerebral process? We are asked to suppose that what a mind knows itself and its experiences to be, bears no intelligible relation to what another sentient being perceives them to be. Now whether the fault lies with sense or with the externality of the knower makes little difference. One identical entity is two utterly irrelevant things, one for itself and another for an external observer, or one for sense and another for thought. Such a parallelism differs from the agnostic or monistic parallelism which it is designed to replace mainly in that it involves an entirely untenable and virtually contradictory distinction between sense and thought, and between internal and external knowledge. In the concluding chapter the indirect or physiological explanation of mind is provided for, to complete the physical account of the world with a study of the physical correlates of mind, these constituting mind as a possible object of sense. These correlates correspond not in quality, but in that they form a system with a complexity and connections answering to those of the system of mind. But we are informed that "there is no discovery about the nervous system that does not have its place and full value in the direct account of mind." And apparently this is not because the nervous system is itself a phenomenon, but because when mind is studied objectively, as in the case of comparative psychology, it is indistinguishable from forms of organic and nervous functioning. Thus the author's correlative theory would seem to be not only philosophically untenable, but scientifically unworkable.

Turning to mind as known directly by ourselves, "who are our minds and have its experiences," Professor Mitchell makes a preliminary analysis, first, of the general divisions of experience (*i. e.*, consciousness), and, secondly, of the *course* of experience. Before proceeding with the three main types of experience, *knowledge*, *interest* and *action*, the author makes the very important announcement that to have any kind of "object experience" is also to have a "subject experience." "The experience of an object is never without experience of our self, and the experience of our self is never without experience of an object." Now such a statement as this becomes progressively unintelligible with added reflection. By the "subject experience" is meant not the presupposition of a real subject, but the subject *in consciousness*. And how can the subject in consciousness be distinguished from the object of consciousness in general? By the admission of the author, both are content; there is consciousness of both; and both are entities having being apart from the consciousness of the moment. When the subject factor of consciousness becomes in a later moment the object of consciousness, it is held to be the same entity, and

must possess identical content. It must be proper to say that in the previous moment this subject or self was known, at least for purposes of identification; and the subject becomes only one of the objects of consciousness which, like any other object, may pass from margin to focus. The author's generalization quoted above now becomes the intelligible, but highly questionable, proposition that in every case of consciousness the self-thing is experienced among other things. Such a change of terminology, furthermore, would essentially alter the author's treatment of knowledge, interest, and will; for in distinguishing these types of consciousness he virtually appeals to the unanalyzable subject experience.¹ It is held that we immediately experience three different attitudes of the subject towards the object: we may consciously think it as real, feel towards it, or seek it as an end. "In our experience of an object all that we make object, all that we set before us, we think; how it strikes or affects us, we feel." "In seeking any end I must have thought of it and be pleased with it, but I only seek it when I give myself to it, and to realizing it." Such distinctions are wholly valueless because they rest neither on the analysis of function nor on the analysis of content, but only on an appeal to experiences which by definition are incapable of verification.

Having distinguished knowledge, interest, and action as the main strands of experience, the author turns to a study of the "course" of experience. In a course of experience every next stage is determined by the present one, which is "an attitude that does not satisfy," and "works itself into one that does." All experience is thus experience of self-activity. Lecture V., containing a brief statement of the author's method of "direct explanation," is in many respects the best chapter in the book. We are to explain the development of a course of experience; such, for example, as the transition from sensation to knowledge. The factors involved are three: the given content, which the author calls the "occasion"; the self; and the faculty, or that special function of the self which is engaged. But we can eliminate the self, because it always functions through one of its faculties. For purposes of explanation, the faculty is not experience, but the operative mental organization; though the reader is encouraged to suspect that it is somehow connected with the experience of self-activity.

In the remainder of the book, constituting its greater part, Professor Mitchell deals in detail with "Sympathetic and Esthetic Intelligence," and with "Growth of Intelligence." Under the first of these headings, after treating of imitation, the author passes to "Absorption in Object," a special type of experience which he isolates mainly for purposes of emphasis. In this experience interest is confined to the object itself; as in "fellow feeling," through which we fixate the experience of others; in "individuation," through which we regard natural objects in all their concreteness and richness; and in the esthetic consciousness proper.

¹ Cf. the author's remarkable statement on p. 100: "But in all experience beyond mere sensation the difference between subject and object is felt. It is not felt as a difference between object and object: we do not think the difference. It is felt as an attitude towards the object."

Under the heading "Growth of Intelligence," the author discusses the stages of knowledge and the development of science. Here we deal with that function of intelligence which, unlike the esthetic interest, breaks up the individuality of things, and aims to discover their systematic relations. While distinguishing "sensory," "perceptual," and "conceptual" intelligence, the author insists that "all grades of intelligence have not only a common process or method, but exercise it about a common real object." In sensory intelligence there is a series of sensations denoting the stimulus and the reactive process. Perception begins "when a sensory object is thought as a quality, and, most simply, as a member of a group." Conception begins "in the explicit thought of connections that are implicitly thought in perceiving."

In the space at our disposal it is impossible to convey an adequate idea of the wealth of penetrating analysis which this book contains. There is scarcely any philosophical topic upon which the author does not make some instructive comment. The fundamental difficulties to which attention has been called above, together with the obscurity of style and arrangement, militate most seriously against the use of this work as a text-book or systematic treatise; but it will profit any student to refer to it for light on the epistemological approach to special problems.

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Studies from the Psychological Laboratory of Wesleyan University.
Vol. I., No. 1. *Monograph Supplement, Psychological Review*, Vol. VIII., No. 4, November, 1907. Baltimore: The Review Publishing Co. Pp. iv + 92. *An Experimental Study of Visual Fixation.*
RAYMOND DODGE.

Professor Dodge's experiments are directed mainly towards proving that there is no fixation point in the field of vision, and that there is no central retinal point of distinctest seeing to which every point of interest in the field of vision is brought. Instead of "fixation point," Professor Dodge proposes the term "fixation field." The eye is never perfectly still. Movements of the head, due to pulse and breathing and other irregular causes, constantly disturb visual fixation. There are no compensatory eye movements for these disturbances. Retinal fatigue is suggested as another motive of fixation movements. Vision becomes blurred when the same retinal elements are continuously excited. There is then a shifting of the eye so as to employ neighboring retinal elements. The author admits that the proof for this hypothesis is not conclusive. Still another visual motive for fixation movements is inadequate binocular adjustment. The author includes here movements of convergence and divergence.

Peripheral stimulus on the retina produces reactive eye movements to establish fixation. The peripheral stimulus may be due to a lapsed fixation or to the appearance of a new point of interest. The reactive movement of the eye will be exact, however, only occasionally and by accident, because of the slow reaction time of the eye and the intervening

movements of the head. Professor Dodge measured the reaction time of the eye by letting a beam of light fall obliquely on the cornea simultaneously with the exposure of a word a little to one side of a preexposure fixation mark. The reflection of the light from the cornea was photographed on a falling plate, which registered a lateral movement of the eye as a slanting line; the record was ended when the subject shut off the light with a Cattell sound-key on beginning to speak the word he saw.

The quickest reaction obtained from exposing a 41' word $1^{\circ} 30'$ to the right of the prefixation mark was 130σ . The average of 17 such exposures was 151σ ; the highest, 163σ ; the mean variation, 9.9σ . The experiment was varied by taking a longer distance, and sometimes exposing the word to the right, sometimes to the left, which gave, for 23 other records, longer times.

The absence of a retinal point which is brought to bear on each point of interest in the field of vision was shown by getting an after-image of an illuminated wedge and then reading a word exposed about fifteen degrees to one side of the wedge. The after-image of the wedge was seen at some point about the word. The same words were exposed in three different series. Each time the wedge was seen at a different part of each word. Only rarely did the wedge appear at the same point in successive exposures. Professor Dodge concludes: "The psychophysiological dogma that there is a tendency to transfer every peripheral stimulus to a fixed punctiform functional retinal center is a myth. There is no punctiform functional center of the retina." There is an area of indefinite extent, varying with the character of the object of regard, where vision is more distinct. This merges into a vaguely bounded peripheral area of less clear and distinct vision.

The rate at which movements of the eye succeed one another for the purpose of adequately fixating different objects, is conditioned by the rapidity of the clearing-up process. By the "clearing-up process" the author means all that has usually been called latent time, retinal inertia, and the development of retinal stimulation. Six experiments are described, in which the time of the clearing-up process was measured under different conditions of the field of vision preceding and following the exposure. A white field preceded and followed by a field partly white and partly black cleared up (that is, became as white as the preceding and following white) in from five tenths to several seconds, according to the duration of the preceding exposure. A gray field preceded by one wholly black and followed by one wholly white was not seen at all after an exposure of 90σ . The author thinks this phenomenon analogous to the illusion of clear vision during eye movements which has been the subject of recent discussion. A phrase preceded and followed by a field half black and half white did not perfectly clear up even with an exposure of 500σ . The test of perfect clearing up was absence of any difference in intensity and apparent time of appearance between the halves of the phrase that fell on the white and black. In another experiment different results were obtained when a word (complicated with another word exposure) was preceded by black and followed by white, than when the

reverse was the case. Again, a horizontal line exposed before and after the word rendered the word uncertain. Several horizontal lines, however, cleared it up. A group of vertical lines almost completely obliterated it. The shortest adequate fixation pause in reading is given as between 70 and 80 σ .

The apparatus that was used for determining the reaction time of the eye was also used to measure the fixation movements of the eye in reading. Every fixated object is seen in a more or less complicated setting. Peripheral seeing plays an important part in reading. Dearborn's hypothesis that the eye in the first fixation takes a more general survey of the line as a whole than in later fixations was confirmed. The exact position of the point of regard is not important. It may be at any part of a word. No one factor determines its precise position. The object of interest is not a point, but an area.

In his last chapter, Professor Dodge attacks the "traditional theory of motor local signs," according to which the retinal elements are differentiated and organized by the mediation of kinesthetic feelings that accompany the movements of the eye in bringing peripheral stimuli to the center. Professor Dodge asserts that there is "not one particle of unambiguous experimental evidence that can be adduced to its support." Neither the velocity nor the extent of our eye movements is known to us. Adequate sensations of eye movements do not exist. There is no evidence of any motion to bring stimulations of the fovea itself to its exact center. Professor Dodge proposes instead a theory of the "genetic organization of the retinal elements." If we suppose a retina in which the elements have not been mutually related and differentiated, then association into groups must soon take place through similar excitation of contiguous elements by the same patches of stimulus. Movements of the eye would bring different retinal elements into association—a single patch of stimulus now covering one group, now another which partly overlapped the first, and then a third which partly overlapped the first two, and so on. Each element of the retina would thus become related to all the other elements. Movements of the eye simultaneous with the shifting of patches of stimulus would relate the retinal organization with the organization of motor impulses. "This association must tend to standardize the group organization at various parts of the retina."

It is not clear whether Professor Dodge's theory is intended to explain the origin of retinal local signs, or the origin of the feeling of spatial relationship between them. He seems to mean local signs when he speaks of "the group differential organization of the retinal elements"; and the sentence "The psychological aspects of the retinal organization are given in the spatial relations of the various parts of the field of view," seems to mean that space relations are given immediately by the physiological differentiation of the retinal elements. On the other hand, the author goes on to speak of "a certain relatively late and relatively gross organization of the motor impulses," coordinated with the retinal organization, and serving as "a connecting bond between the organization of visual and the organization of tactual elements." The coordination of the

visual relationships "with the relationships of the tactual sense" produces "the complex organization of our sensory experience which we have given in immediate consciousness as space." If "group organization of the retinal elements" means the same as local signs, and the theory stops there, it is inadequate to explain spatial perception. If "organization of the motor impulses" is added, it is not clear how this theory gets beyond the one criticized.

A discussion of the technique of recording the eye movements is given in an appendix.

A. LIPSKY.

NEW YORK CITY.

Moral Training in the Public Schools. The California Prize Essays.

CHARLES EDWARD RUGH, T. P. STEVENSON, EDWIN DILLER STARBUCK, FRANK CRAMER and GEORGE E. MYERS. Boston: Ginn & Co. 1907. Pp. 203.

The subject of moral training in the elementary schools of America is perhaps more widely discussed to-day than at any previous period in our history, and the present volume is certain to be hailed as timely. A citizen of California, who withheld his name, recently placed in the hands of the Reverend Charles R. Brown, a pastor at Oakland, California, President David Starr Jordan, of Stanford University, and Professor Fletcher B. Dresslar, of the University of California, the sum of eight hundred dollars to be awarded as first (\$500) and second (\$300) prizes for the best essays on "Moral Training in the Public Schools."

Three hundred essays, "many of them of high merit," as the committee affirms, were submitted, and the first and second prizes were awarded, respectively, to Mr. Rugh and Mr. Stevenson. But three other essays—those by Messrs. Starbuck, Cramer, and Myers—seemed to offer such distinct and individual contributions to the discussion of the problem that they were included with the publication of the two prize essays.

Mr. Rugh's essay is the most notable of the series, and is most suggestive to the student of pedagogics. His familiarity with the literature of ethics and genetic psychology is evident, and he manifests a clear insight into the needs of the public schools. Mr. Stevenson's opposition to the parochial school supported by public funds is one of the clearest statements that has come to the attention of the reviewer. The paper by Mr. Myers is chiefly valuable because of the brief, but excellent, exposition of conditions in Germany, France, and England with reference to moral training in the schools.

On one phase of the problem all the essayists are agreed, viz., that a secular system of education would be antagonistic to our national character and out of harmony with American political institutions. Mr. Stevenson asserts that sectarian school systems do not make good citizens, but devoted members of their respective sects.

The personality of the teacher is emphasized as the most potent factor in moral training, and several of the essayists lament the absence of the male teacher in the elementary schools of the United States, assuming

that our schools are training a race of effeminate men, lacking in virile, aggressive qualities.

The volume is a notable contribution to the discussion of moral education and allied problems, and the simplicity of treatment makes it easy reading. The absence of an index is to be regretted.

WILL S. MONROE.

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The Psychological Experiences connected with the Different Parts of Speech. ELEANOR H. ROWLAND. *The Psychological Review*, Monograph Supplement, January, 1907. Pp. 42.

The writer started with the following query: "What differentiates the prepositional state of mind from that which makes up the meaning of other words? In general, why are other parts of speech easily adopted, while others defy all attempts to introduce them?" The experiments were conducted with only one subject and were made entirely on separate words. Three stages of meaning were noted: (1) a feeling of familiarity with the word, (2) a feeling that she would know how to use it, (3) the unrolling of the images. Lists of words of different parts of speech as much allied in significance as possible were selected, such as *weight*, *lift*, *heavy*, *under*, and the main conclusions are these: Concrete nouns stand for a "constant attitude binding together a variety of images," while the verbal noun demands not simply an attitude expressing possibility of action, but expressing the actual carrying out. With the verb there is usually a definite impulse to carry out the action suggested. The adjective, on the other hand, involves no purposive action, but usually has some feeling tone due to subjective reaction, since the whole self seems involved, and this latter fact accounts for the feeling of oppositeness discernible in so many adjectives denoting sense or judgment qualities, though they point to an object as possessing these qualities.

Prepositions are found to be without ideational content and so apparently can only be expressed by muscular tensions of various kinds. Hence the difficulty the child has in learning them. Adverbs are uniformly found to be less intimate than adjectives, as belonging less to the subject than the external world. Adverbs of place are felt in terms of tension, but differ from the tension of prepositions inasmuch as they are more purposive. Likewise transitive verbs have something of this prepositional character of tension *versus* ideation, but still have the power of expressing specified purpose. Again, an abstract noun and an adjective are alike in possessing the adjective characteristic of subjective reaction, though the noun maintains its character of standing alone, while the adjective points to something else. The pronoun, psychologically, is simply the pointing to something.

The original query is answered in showing that prepositions do not change, since new occasions for them do not arise, and their meaning is so bound up in the tensions of the whole organism that the possibility of variation is reduced to a minimum. Pronouns, likewise, and adverbs of

place and time do not vary; and, in general, the conclusion of the whole paper seems to be that in proportion to the ideational content do the words of language vary. A valuable bibliography is added relating to the nature of speech, nature of the different parts of speech, which parts of speech appear first in language and in childhood, which parts of speech vary most easily, aphasic changes.

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Ueber den Einfluss des Helligkeitskontrastes auf Farbenswellen. Roswell P. ANGER. *Zeitschrift für Sinnesphysiologie*, Band 41, 1906. S. 343-363.

A small field of color and a gray background were so arranged that the following three quantities could be varied independently—the intensity of the gray ground, the intensity of colored light in the central field, and the intensity of white light that could be mixed with this colored light of the central field. The author studied the effect of contrast between the two gray values (of field and background) on the threshold of color vision in the central field. This central spot was imaged wholly within the fovea of the observer. It was believed that the threshold values of color would be more exact if the observer was not asked to judge on the presence or absence of a color, but if he was rather asked to judge of the difference between two colors. To this end the right and left halves of the central spot were given complementary hues (red and green or blue and yellow) whose *Peripheriewerte* had been carefully equated; whose stimulation values or *Weissvalenzen*, therefore, according to v. Kries, were equal for the color-sensitive elements of the eye. Only one of these complementary pairs was used in a series, but the positions of the two hues could be exchanged without the knowledge of the observer, and that intensity of the colored pair was taken as the threshold at which the observer could correctly state for five times in succession in which relation the colors stood (*e. g.*, red-green or green-red). The eyes of the observer were kept at a moderate degree of dark adaptation.

It was found that so long as the intensity of the background (outer white) is less than that of the white light which is added to the color of the central field (inner white) variations in the former have no appreciable effect on the threshold for color, in this field. But every increase in the intensity of the outer white *over* that of the inner white raises the color threshold. If the intensities of outer and inner white are kept equal and are increased together, the color threshold is raised; and if the former are decreased, the latter is lowered. Whatever the intensity of outer white, an increase or decrease of the intensity of inner white raises or lowers, respectively, the color threshold. Thus any increase in the intensity of the white light, whether in the outer or inner field, determines a rise in the threshold for color: notwithstanding that when the outer field is lightened the subjective brightness of the colored spot is *decreased* (by contrast) and its saturation *enhanced*, while when the inner field is lightened by white light the subjective brightness of the colored spot is *increased* and its saturation *diminished*.

Before these results were published, but after the investigation had been completed, they were in part independently confirmed by Révész.

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JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. November, 1907. *The Objects of Knowledge* (pp. 577-587): JOSEPH A. LEIGHTON. - Object as term of reference for thought to be distinguished from external, existential thing. Cognitive objects are: I. Objects of public or common reference; these include (a) all physical objects, (b) social psychological objects. II. Subjective, individual objects. III. Universal truths; the over-individual principles of validity. The physical sciences are sciences of over-individual physical existents. The psychological sciences are sciences of over-individual psychical existents. Mathematics, logic, esthetics, and the philosophy of religion are sciences of over-individual first principles. *Kant's Classification of the Forms of Judgment* (pp. 588-603): ARTHUR O. LOVEJOY. - Dr. Hauck has recently shown in *Kantstudien* that Kant did not take his table of judgment forms from current usage, but manufactured it to meet the supposed needs of "transcendental" logic. The claim, therefore, to base the subsequent portion of the "Critique" upon the table of judgments is an elaborate, though unintentional, pretense. *Possibility and Reality* (pp. 604-615): EDMUND H. HOLLANDS. - There are two typical conceptions of possibility: (a) possibility is a subjective notion; (b) there is absolute possibility. Spinoza held the first view, Leibniz the second. The distinction of the possible from the real, the essential from the existential, results in self-contradiction. *Discussion: Dr. Ewer on the Freedom of the Will* (pp. 616-623): G. W. CUNNINGHAM. - The existential standpoint is inadequate. It is a problem of concrete experience, and its solution is in the direction of teleological categories. The only intelligible freedom is freedom in necessity. *Reviews of Books*: William James, *Pragmatism*: CHARLES M. BAKEWELL. Walter Kinkel, *Geschichte der Philosophie als Einleitung in das System der Philosophie*: WM. A. HAMMOND. S. S. LAURIE, *Synthetica*: WALTER G. EVERETT. J. Reinke, *Philosophie der Botanik*: E. G. SPAULDING. *Notices of New Books. Summaries of Articles. Notes.*

REVUE PHILOSOPHIQUE. December, 1907. *La psychologie quantitative. III., Psychologie quantitative expérimentale* (pp. 561-587): J. J. VAN BIERVLIET. - A study of the methods of quantitative psychology as applied to problems related to pedagogy. *La mémoire affective: Nouvelles remarques* (pp. 588-613): TH. RIBOT. - A new attempt to establish the existence of affective memory through facts little liable to double interpretation. *La sympathie esthétique* (pp. 614-631): VERNON LEE. - A critical study of Lipp's *Einfühlung* hypothesis based on "Die ästhetische Betrachtung und die bildende Kunst." *Analyses et comptes rendus*:

A. T. Ormond, *Concepts of Philosophy*: A. PENJON. Mary Whiton Calkins, *The Persistent Problems of Philosophy*: F. PILLON. A. Stöhr, *Philosophie der unbelebten Materie*: ABEL REY. E. Le Roy, *Dogme et critique*: JEAN BARUZI. C. Hémon, *La philosophie de Sully Prudhomme*: L. ARRÉAT. Ellen Bliss Talbot, *The Fundamental Principles of Fichte's Philosophy*: J. SEGOND. Georg Simmel, *Schopenhauer und Nietzsche*: G. PALANTE. Wundt (Max), *Der Intellectualismus in der Griechischen Ethik*: C. HUIT. Cantoni, *Kant*: J. SEGOND. Giuseppe Modugno, *Il concetto della vita nella filosofia greca*: C. HUIT. Franz Brentano, *Untersuchungen zur Sinnespsychologie*: B. BOURDON. *Revue des périodiques étrangers*.

Dowd, Jerome. *The Negro Races*. Vol. I: The Negritos, the Nigritians, the Fellatahs. New York: The Macmillan Co. 1907. Pp. xxiii + 492.

Leclère, Albert. *La morale rationnelle dans ses relations avec la philosophie générale*. Paris: Felix Alcan; Lausanne: Payot & Co. 1908. Pp. 539. 7.50 fr.

Störriing, Gustav. *Mental Pathology in its Relation to Normal Psychology*. A course of lectures delivered in the University of Leipzig. Translated by Thomas Loveday. London: Swan Sonnenschein & Co. 1907. Pp. x + 298. \$2.75 net.

Watson, John. *The Philosophical Basis of Religion*. Glasgow: James Maclehose & Sons. 1907. Pp. xxvi + 485. \$3.00 net.

NOTES AND NEWS

THE *Athenæum* of December 14 contains the following account of the system for sociological study adopted by M. van Overbergh in his recently published treatise on the Bangala people: "In the *Athenæum* of April 6th reference was made to the project for codifying our knowledge on sociology put forward by M. Cyrille van Overbergh, principal secretary in the new Science and Arts Department in Brussels. M. van Overbergh now gives the first practical proof of the value of his own system in an elaborate treatise dealing with the Bangala people, who represent the most advanced of the Congolese races. The author explains the system he has adopted. In the first place, a complete collection of books, pamphlets, magazines, and articles containing references to the Bangalas has been listed in correct bibliographical form. This having been done, extracts were made setting forth each particular fact on a separate slip, and then these passages were grouped in the order prescribed under the two hundred and two headings in the interrogatory of the Belgian Sociological Society. The passages were then submitted to critical examination for the elimination of repetitions, and for the selection of the most complete statement on any given point or detail. The results were then submitted

for the revision of officials and explorers who had lived among the Bangalas, and also to a few specialists who, although they had not resided in the territory, had studied the subject from one standpoint or another. The result is an authoritative study of the Bangala people in all their social habits, as well as with regard to their present conditions, and moral development through contact with Europeans. By the arrangement adopted the student can find all the available information and the surest conditions with regard to any feature or fact in the Bangala social system. But the special merit of M. van Overbergh's treatment is that, copious as are the details supplied, more are invited from any quarter, and they can easily be added, for each page of the volume is perforated and easily detachable. Each page, moreover, can be purchased at the cost of a penny. As the author says in his preface: 'The work thus may be rendered continuously more perfect; it appeals to all disposed to help; it gives the maximum of help to those desirous of publishing their observations; it reduces the chance of error. Undoubtedly the task is a heavy one . . . it calls for collaboration.'

THE publishers of the *Hibbert Journal* promise various articles likely to interest students of philosophy. Mr. Jacks, the editor, continues the article begun in the last issue, there entitled "The Universe a Philosopher." The forthcoming number will be entitled "The Alchemy of Thought." Father Tyrrell writes on "The Prospects of Modernism," contrasting modern sympathies and points of view with the medieval habits of mind inculcated in those institutions of "organized ignorance," the Roman Catholic seminaries. Professor G. A. Coe has an article on "The Sources of the Mystical Revelation," and Mrs. Stuart Ware writes on "The Magic and Mysticism of To-day."

THE *Harvard Theological Review*, a quarterly, issued by the faculty of divinity in Harvard University and published by the Macmillan Co., starts its career with the beginning of 1908. The first number contains articles by Francis G. Peabody, Arthur C. McGiffert, William Adams Brown, Benjamin W. Bacon, David G. Lyon, Thomas N. Carver, and Charles F. Dole. There are one hundred and twenty-five pages of text.

"Varieties of Religious Experience" has been translated into German by Dr. Georg Wobbermin, professor of theology at Breslau. The title in German is "Die Religiöse Erfahrung in ihrer Mannigfaltigkeit."

PROFESSOR E. B. TITCHENER, of Cornell University, has been appointed non-resident lecturer in psychology at Columbia University.

THE death is announced of Victor Brochard, contributor to the *Revue Philosophique* and author of "Sceptiques Grecs."

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

KUNO FISCHER: AN ESTIMATE OF HIS LIFE AND WORK

A FEW months ago there passed away, in his eighty-third year, one of Germany's foremost thinkers—Kuno Fischer, the historian of modern philosophy. Few men have attained to greater reverence in the realm of thought than this aged teacher of Heidelberg. For more than thirty years he taught philosophy from the chair which Hegel once adorned in this beautiful seat of learning. For nearly a generation he was the most notable figure and most honored citizen of the university town, so that when students and people gathered in the *aula* to listen to the memorial address of Professor Windelband they felt that a prince had fallen and the community had lost indeed a guide, philosopher, and friend.

Kuno Fischer was born in 1824, in the Silesian village of Sandewalde, where his father was pastor. His life from the earliest was devoted to study. Gifted with a fine literary taste, even as a boy he reveled in the works of Homer and Plato, Schiller and Goethe. He entered the University of Leipzig as a student of philology, devoting himself to the mastery of Greek and German culture under the guidance of Hermann and Haupt. Thereafter he went to Halle, where under Erdmann and Haller he caught his enthusiasm for the study of philosophy, which became henceforth the work of his life. Though a hard reader, he did not withdraw himself from the social life of the university. He was a member of a student's *Chor*, took part in many a college escapade, and tradition says that he fought more than one duel, the traces of which were left upon his countenance. In 1847 he took his doctor's degree with notable distinction, writing a brilliant thesis upon Plato's dialogue of Parmenides. His first literary work was written while a tutor with a family in Pfortzheim. It was a series of letters upon the idea of the beautiful, which appeared in 1849 under the title "Diotima." Though based on the Platonic idea, one can detect already the influence of Schelling and Hegel in his view of beauty as the ground-principle of the world. The love of the beautiful was, indeed, one of the chief elements in his life, as it was the factor which next to truth gave grace and charm to his writings.

After some years of private study, richly furnished with knowledge, he established himself as privat-docent in Heidelberg. Even at this early stage of his career his eloquence and literary style attracted large numbers of students to his classroom. In 1853, however, on account of what was regarded as the pantheistic tendency of his teaching, he was deprived of his post. But his love for Heidelberg did not cease, and for three years he lived quietly in the beautiful neighborhood, pursuing his philosophical labors and adding to the first volume of his history, which had already appeared, volumes on Spinoza, Leibniz, and Bacon. After three years of exile he received a call to Fichte's chair in Jena, where he taught for fifteen years. Eventually, in the year 1872, when Zeller vacated his chair to succeed Trendelenberg in Berlin, the ban was removed and Kuno Fischer was recalled to the scene of his early popularity and received with open arms. He retained a warm regard for Jena, which had befriended him in the days of his darkness. But his heart lay in Heidelberg. "Gladly will I come to Heidelberg, there to live and there to die"—was the answer he sent when the first invitation came to him to return. The word was prophetic. From that time his life became an integral part of the place. No event happened in which he had not the principal share. He was the head and front of its activities, its festivities not less than its more earnest projects. For more than a quarter of a century Heidelberg and Kuno Fischer were synonymous terms. He soon became the most revered professor and most popular teacher in the university which could count among its representatives such world-famed names as Schenkel, Hausrath, and Gass. To hear Fischer became a fashion. No matter what faculty a student belonged to, his curriculum was not complete without attendance upon his lectures. Whether he discoursed on the "Theodicé" of Leibniz or the "Faust" of Goethe his classroom was full to overflowing, and year after year his teaching exercised a healthful and broadening influence upon the young life of Germany. Other teachers may have contributed more in the way of adding to the student's sum of knowledge, but none could compare with Fischer in inspiring an enthusiasm in the breasts of his hearers for the subject he taught.

If we inquire what were the elements of Kuno Fischer's influence, we should mention first of all the *force of his personality*. All who came into contact with him felt that he was a strong man, and his individuality and intensity of purpose enthralled his hearers. The secret of his power lay in the fact that he lived what he taught, and his character was clearly impressed on all he said and wrote. His teaching combined in a wonderful degree truth and beauty, exactness of thought with grace of diction. His earlier studies, as we have

seen, were in the sphere of estheticism, but it was in no narrow technical sense that he conceived the idea of the beautiful. With him it was an element that entered into all life and work. He could not rest till every conception was worked out into absolute clearness of thought and was clothed in perfect beauty of form. Truth and beauty thus became the necessary constituents of all his utterances and gave to every lecture he delivered the character of a work of art. Gifted with a voice of wonderful reach and wealth of tone, which he knew well how to modulate so as to express, now scathing invective, now appreciative feeling; possessed of a commanding presence and expressive countenance which quickly registered every emotion from playful wit to tender pathos; and withal having at his command that ready, spontaneous gesture in which action answers to thought—he was essentially an orator. He had the preacher's gift, the eloquence of the ancient prophet which irresistibly laid hold of his hearers and bore them along with breathless attention. Well does the present writer remember the wonder and admiration with which he listened to his exposition of Kant and his lectures on Goethe. Every day was a fresh intellectual joy, an exhilaration and excitement. One knew not whether to admire more the originality of thought or the brilliance of language in which it was set forth. The speaker was not without his mannerisms. It is said that Kant used to fix his gaze upon a nail in the opposite wall while lecturing, that Hegel kept turning backward and forward the pages of his manuscript. Kuno Fischer invariably held a small key with both hands right before him and toyed with it while he spoke. While other German lecturers usually sat, he stood during his delivery. Not a note or scrap of paper was to be seen upon his desk. He was always attired with evident care and neatness. For an hour he held our rapt attention, and then amid hushed awe he marched out with the air of a conqueror. The lecture was a finished whole. There were no ragged fringes or tagged-on explanations. It was a masterpiece from beginning to end. But there was no appearance of effort, no sign of what it must have cost him. The whole thing was clear-cut, crisp, free and flowing like a limpid stream.

The professor's chair was Kuno Fischer's throne. He exerted his mightiest influence *ex cathedra*, giving his best to his students from day to day. He believed in the power of the spoken word, and preserved in his style of address the highest traditions of university teaching. The modern fashion of tutorial instruction, the conversational method of question and answer, he left to others. He believed in sowing the seed broadcast and leaving it to germinate, in arousing and inspiring a love and enthusiasm for knowledge through the medium of sustained and exalted speech. If we would seek a par-

allel to the peculiar power of Fischer we must recall the effect produced by Fichte in Jena or Schelling in Berlin, or think of the influence of Abelard in the middle ages, or of Victor Cousin and his school in Paris at the beginning of the nineteenth century. The type is almost extinct, and Kuno Fischer was the last of the orators.

But it is when we turn to the *contents* of his teaching that we can rightly estimate his far-reaching influence. The beautiful form would have been powerless to make a lasting impression had it not been but the vehicle of an intellectual and spiritual potency which he possessed in a rare degree. He represented a phase of thought which belonged to the past; and in an age which had yielded to the materialistic tendencies of science he bore witness to the forgotten truths of idealism and strove to lift his contemporaries out of apathy and skepticism to a more earnest and spiritual conception of life.

Kuno Fischer's contributions to thought were at once historical and literary. Very early in his career he espoused the study of modern philosophy. He sought to rehabilitate the past and make the early idealistic thinkers live again. What Edward Zeller did for Greek philosophy Fischer sought to do for German. Beginning with Bacon and Descartes, he treated in successive semesters with great fullness and elaboration of the life and work of Spinoza, Leibniz, and Kant, and eventually of Fichte, Schelling, Schopenhauer, and Hegel. He endeavored to impress the German youth with veneration for the exalted figures of thought. He stood forth as a spiritual witness of ancient tradition and strove to show that the past had lessons to teach which his age in its impatience with the old and its restless quest for the novel was in danger of forgetting.

Fischer was no mere technical teacher. While abating nothing of exactness or precision in his researches, philosophy was for him no narrow discipline that had to do only with abstract concepts and logical categories. It was a thing of life, and had relations with a man's whole view of the world and the manifold problems of thought and being which human existence presented. Poetry, art, religion, not less than psychology and logic, were the constituents of a true philosophy. He felt that it was impossible to study adequately the work of the thinker proper without at the same time considering the reciprocal relations in which he stood to the literature and social life of his times. Hence he adopted the practise at Heidelberg which he had introduced with such happy results at Jena, of lecturing on the great personalities of German literature—Lessing, Schiller, Goethe, and even Shakespeare, whom he regarded as almost one of the German poets. The inner meaning of "Nathan der Weise," "The Self-revelations of Schiller," the origin and interpretation of Goethe's "Faust," as well as the "Hamlet" of Shakespeare, were

again and again dealt with. In this way his classroom became the home of the broadest culture, and the youth of Germany were summoned to return to the true sources of their national greatness and to seek inspiration at the springs of spiritual life.

His writings bore witness to the same truths and sought to accomplish the same ends as his academical teaching. His books and his lectures stand in the closest relation. What he delivered *viva voce* he worked up eventually into a volume, and the same elements which made the spoken address so attractive—the depth of thought and clearness of language, the fineness of antithesis and picturesqueness of portraiture—contributed also to the charm which not scholars only, but the cultured world generally, have found in his works. He has a method of his own. He is no mere reporter of others' views. He deals with the contents of history as the artist deals with his materials. He is a creator at whose plastic touch the figures of the past stand forth in living reality. In his great work, "The History of Modern Philosophy," he concentrates his attention upon those thinkers whose systems have been epoch-making, around whom he groups the various tendencies of their times. His history bears thus the character of a series of brilliant biographies rather than the aspect of a continuous narrative. He believes in the personal element in philosophy. A man's thought is the outcome of his life. It takes its trend and tone largely from those formative elements—temperament, environment, education—which have made the man what he is. Hence each volume of Fischer's is a biographical study, complete in itself, which sets before us the man as he lived and thought. The details of his early life, the political and social circumstances amid which he moved, the origin and occasion of his writings, his relation to his times and his influence upon his age—all go to form a well-rounded picture of each successive figure in the history of philosophy.

But Kuno Fischer's "History," though distinguished by its biographical and literary form, is not lacking in scientific accuracy or philosophical originality. On more than one occasion his work has given a new direction to speculation and has overturned an accepted judgment in history. He is the only German who has done justice to Bacon, and is the first who has given him his rightful place in history as the father of English philosophy. He subjects the famous essay of Macaulay on Bacon to a scathing criticism, ridiculing his distinction between theoretic and practical philosophy and his claim that Bacon's merit lay wholly in his being what he calls a practical philosopher. Bacon, says Fischer, was a theoretic thinker not less than a practical. He thought too highly of the practical mind of man to lessen or straiten the theoretic. But as a matter of fact all

philosophy, according to Fischer, is practical, even if we take Macaulay's test—that of meeting the wants of man. For man's needs must not be limited, as Macaulay limits them, to his material wants. The desire for knowledge, the insatiable yearning for truth, which is a permanent human instinct, must be regarded, not less than those of ordinary life, as among the needs of man; and philosophy in so far as it responds to that longing is practical even though no material result may accrue. "As long as the desire of knowledge," says Fischer, "is an active want in our inmost nature, so long must we strive to satisfy this want. . . . So long as religion, art, and science actually exist as an intellectual creation by the side of the physical, so long will man feel the necessity to direct his attention to those objects and to produce within himself a copy of the ideal world as well as a copy of the world of nature. In other words, he will feel himself practically compelled, by an internal necessity, to attempt the theoretic cultivation of the mind." This has been the aim of all so-called theoretic thinkers, and Bacon was no exception.

Again, the striking volume on Kant which Fischer published in 1860 made an epoch in Kantian study, and has created the neo-Kantian movement, which, with its motto "back to Kant," has been so fruitful in modern thought.

Not less significant has been his last work, his book on Hegel, with which in 1901 he closed his series of volumes on the history of modern philosophy. Here, too, he has succeeded in reviving an interest in the great master of idealism by stripping his philosophy of its scholastic excrescences of form and bringing into prominence its unique merit, the idea of a spiritual development in history.

It might have been expected that a man endowed, as Kuno Fischer undoubtedly was, with exceptional gifts of thought and expression would not have contented himself with merely reproducing the ideas of others, but would have sought to make an original contribution to philosophy. It is true that he has nowhere defined his standpoint in any separate systematic treatise. Yet he was not without his *Weltanschauung*, and his originality lies in his conception of historical development, of which his history is the expression. No one can read his books without clearly recognizing his faith in the spiritual source of all reality—in the essential rationality of the world and in the "one increasing purpose" which runs through the ages.

He stands between the two greatest thinkers of German idealism—Kant and Hegel. He is debtor to both. For him these two thinkers were complementary. From Hegel he derived his view of the infinite evolution of the categories of thought. While with Hegel he held that human thought *ought* to be absolute thought, he none

the less acknowledged with Kant that it never actually attains its ideal. From this standpoint, therefore, he regarded all philosophical systems as only relatively true. No single philosophy, not even Hegel's, had uttered the last word. The past is embodied in the present, the present contains the potency of the future.

The only independent work which Fischer published—his “*Logik und Metaphysik*,” the second edition of which appeared in 1865—is in agreement with the view presented in his “*History*.” In this work the category of development, which is the great idea of the nineteenth century, he elaborates as the fundamental principle of logic as well as of metaphysics—a development which is never completed, but which is ever bringing forth new contrasted elements, which, again, become the moments of a new synthesis, only to break forth again in new antitheses. The two great antitheses in life and history are, for him, *intellect* and *will*. This contrast of the theoretic and the practical, this relation of thought and action, he regards as the basis of German idealism, and he traces its development from Leibniz and Kant, through Fichte and Schelling, to Hegel and Schopenhauer.

In his own personal life these two elements were strongly marked. Intellect and will form the outstanding features of his personality. He was a man of great mental vigor and masterful purpose. He held his convictions with tenacity and could ill brook opposition. He had a high ideal of his life work, and his whole character and bearing were in keeping. There was something grand and severe, almost solemn, about his manner—a certain reserve and self-restraint—which repelled strangers and prevented them from appreciating his character. But behind the cold exterior there beat a warm heart which disclosed itself to his few intimates. Among those in earlier life are to be mentioned Strauss, the author of the “*Leben Jesu*,” and Gervinus, the historian of German poetry. Among the later friends with whom he came into closest relations were Goetting, Siebeck, and the jurist Roeder.

His family life was simple and happy. He had one son and two daughters, who, with his grandchildren, brightened his latter years. In earlier life, while he was professor at Jena, a singularly beautiful relationship subsisted between his father and himself. The old pastor on the death of his wife came to live in his house. Regularly every morning at seven o'clock the aged father took his place in the classroom to listen to the lectures of his distinguished son.

Kuno Fischer loved Heidelberg with passionate fondness. In later years his house stood on the other side of the Neckar, looking down upon the winding river and across to the “*Schloss*” in its rich setting of trees. His life was passed in strenuous thought and simple

pleasures, marked by few incidents. Of an afternoon he might be seen taking his walk, accompanied by one of his daughters or by Professor Roeder, through the woods to the Koenigs-Stuhl which crowns the heights. There he would rest awhile and drink a glass of beer, and then return to spend the evening in work. He took, indeed, a deep interest in the affairs of the town, but for the most part his life was lived in the quietude of his academical activity. He deserves to be remembered as one of the great figures of our age in the realm of thought and literature. He has passed away in the fullness of years and of achievement. There was a beautiful completeness both in his life and in his work. By the purity of his character not less than by the high purpose of his teaching he has been one of the most potent spiritual forces in stemming the flood of materialism and skepticism which in the latter decades of the nineteenth century has been overflowing the thought of Germany.

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PSYCHOLOGY AS SCIENCE OF SELF

II. THE NATURE OF THE SELF

ONCE more to take account of stock, the following conclusions have been reached: The basal fact of psychology, implied both by idea and by mental function, is the conscious self;¹ this self stands in close relation to a body; and its varying experiences may, in part, be "explained" and classified by reference to correlated non-physical phenomena—in particular by reference to nerve excitations, to muscular contractions, and to organic accommodations and controls. This self, finally, is no philosopher's or epistemologist's self: it should not, for example, be characterized as free, responsible, or endless, and the question of its more or less ultimate reality is never raised.² The psychologist takes for granted, without meta-

¹ This expression is, of course, tautological, but is employed to distinguish the conception of self from the Lockian concept of "soul" or "spiritual substance" which, on his view, might conceivably not be conscious. The statement that the self is basal fact of psychology does not, it may be added, forbid the psychologist to occupy himself temporarily with "idea," "function" or "experience" of the self, supposing that he always keeps in mind its abstract nature.

² If I understand the criticism of my teaching expressed by Mr. W. Boyce Gibson in a sympathetic review (*Mind*, 1906, N. S., 57, pp. 106 ff.) of "*Der doppelte Standpunkt in der Psychologie*," I should meet his objection that I neglect "the point of view of the personal experient," which is also "a teleological point of view," by urging that this neglected point of view is (as Mr. Gibson indeed implies) a philosophical standpoint and thus outside the domain of the psychologist as such.

physical reflection and on the ground of every-day observation, that there are conscious selves, just as the botanist starts from the observation that there are plants, and the neurologist from the observation of nerve structures.

But it may well be urged that the self, as so far considered, is a very empty sort of phenomenon to which, as yet, no positive characters have been attributed. Why, it may be objected, protest that the basal fact of psychology is not idea and not function, but self, if all that one actually knows of the self could as well be stated in terms of idea and of function—that is, if one knows nothing of the self save that, on the one hand, it is sensationally, affectively and relationally conscious, and, on the other hand, that it functions adaptively or selectively? This is a fair question, but not (I think) unanswerable. On the contrary, the self is found to have certain positive characters, which do not belong to idea or to function. The self is, in the first place, in some degree permanent or persistent. By “persistence” is not meant the ultimate self-identity, which may well be part of the self as conceived by the philosopher, but rather the kind of identity of which one is immediately conscious, notably in anticipating and in recognizing. Not only mental imagery, but the consciousness of myself as “the same ego then as now,”³ is essential to recognition; and the direct consciousness of self-identity is as immediate a constituent of any anticipation as the sensational and affective consciousness involved in it. It is plain that this character of immediately experienced persistence differentiates the self from its ideas. Every one admits, since Hume so brilliantly expounded the truth, that identity can not be attributed to ideas (mental structures, or contents) because these are, by hypothesis, evanescent and fleeting. It follows that identity is a character of the self, not of the idea; and the fact that we are directly conscious of identity as part of our unambiguously mental experience becomes the most persuasive argument for the existence of a self which is not a mere series of ideas. It is not, on the other hand, at first sight so evident that persistence belongs to self, not to mental function. For, it may be urged, “functions . . . persist as well in mental as in physical life. We may never have twice exactly the same idea . . ., but general functions like memory [are] persistent.”⁴ But if one scrutinize the real meaning of the statement “memory—or reason, or will—is a persistent function,” one finds it to be

³ Note 33 to Vol. II., Chapter XIV., § 7, of James Mill's “Analysis of the Phenomena of the Human Mind.”

⁴ Angell, “The Province of Functional Psychology,” *loc. cit.*, p. 66². (Angell, however, does not make this assertion as an objection to self-psychology.)

simply this, that one and the same self at any time may remember, or reason, or will. The special function of remembering or of reasoning has as little permanence as the particular idea: that which persists is the rememberer or the reasoner.

The self is, in the second place, not only persistent, but inclusive; it is, in other words, a complex of ideas, functions, experiences. This is the character of the self which gives to the idea and function conceptions of psychology their hold on psychological thought; for against ideas or functions regarded as parts, or aspects, of the self no crucial objection need be urged. There is little need of further comment, for the complexity of self is admitted on any view of it.

A third significant character of the self is its uniqueness. This uniqueness is, of course, experienced most clearly in our emotional and volitional consciousness: when we reflect upon it we may describe it as a consciousness of a this-which-could-not-be-replaced-by-another.⁵ Now we simply are not conscious of ideas and functions as, in this sense, unique. A given self, with a different idea, is still this self; whereas a given idea is this or that idea according as it belongs to this or that self. I am I whether I see or hear, whether I fear or hope, but another self's vision or fear, however similar, is not this experience, but another. The emphasized consciousness of uniqueness may be described as individualizing consciousness and is a distinguishing character of certain experiences, notably of emotion and of will.

The fourth of these fundamental characters of the self is its relatedness. I think of myself not only as unique, but as related, not only as a this-not-another, but as a this-in-relation-with-another.⁶ In other words, whether perceiving or thinking, feeling or willing, I am always conscious of something-other-than-myself to which I stand in some relation, receptive or assertive; and according as I am more emphatically conscious of myself or of this "other," the relation may be termed egoistic or altruistic. This immediate, or direct, awareness not only of "myself," but of an other-than-self, is, as Ward and Stout insist, a truth to be admitted and not argued by the psychologist.⁷ For the metaphysician and the epistemologist, indeed, "duality of subject and object" presents a problem; for the psychologist it is an admitted character of experience. It is important to note also that the immediately experienced self-relatedness differs from the relations inferred to exist between ideas in that the relation of one idea to another is an addi-

⁵ This will be recognized as Royce's analysis of individuality

⁶ Cf. Judd, *op. cit.*, p. 311.

⁷ Cf. Ward, "On the Definition of Psychology," *loc. cit.*, pp. 19 and 24.

tion to the "idea," not an inherent part of it.⁸ The term "mental function," on the other hand, when function is not limited to the strictly biological, might well be used as a synonym for self-relation.⁹

The psychologist has next to characterize the other-than-self, or environment. This may be of various types: it may be personal—that is, the self may be conscious of itself as related to other selves, or the environment may be abstractly conceived as the ideas or functions of the self—that is, the self may relate itself to its own past or future, as in recognition and in some phases of willing; or, finally, the environment may be realized as "impersonal" or "external." The first of these forms of the other-than-myself is, however, to my thinking, most significant. I can not, indeed, describe or distinguish myself except in terms of my relatedness to other selves:¹⁰ if I drop out of my conception of myself the consciousness of being child, brother, friend, and citizen, I simply lose myself. The awareness of impersonal object, and still more the consciousness of idea or function as distinct from self, are certainly later and less essential than the primary consciousness of other self—as is indicated by the child's early tendency to personify inanimate objects.¹¹

These condensed and abstract statements are, I realize, insufficient to make vivid or even plausible this doctrine of the self. But before attempting, in the following section, the more detailed description of consciousness in these terms I wish to emphasize the truth that all these characters of the self are immediately experienced. Only as such, I hold, have we a right to use them in describing consciousness.¹² For though psychology, like every science,

⁸ Cf. Hume's admissions of this, "A Treatise of Human Nature." Bk. I., Part IV., §6, paragr. 3; Appendix; *et al.* By "relations inferred to exist between ideas," I mean the relations assumed by associationist theories as holding between ideas; the causal relation, for example, of one idea to another. I do not, of course, refer to the relational elements of consciousness, which, as I believe, are inherent constituents of most ideas. (Cf. the first paragraphs of the next paper of this series.)

⁹ I am not claiming that the term function is generally so used, but that it might be so used, since the usual conception of function, "reaction on environment," includes the conception of relation to environment. Cf. a paper on "A Reconciliation between Structural and Functional Psychology," *Psychological Review*, Vol. XIII., pp. 72 ff.

¹⁰ Cf. J. M. Baldwin, "Mental Development in the Child and the Race," Chapter XI., § 3; J. Royce, "Studies in Good and Evil," pp. 33 ff.; and my "An Introduction to Psychology," p. 152.

¹¹ For further discussion of this subject, cf. the next section.

¹² Cf. the emphatic teaching of Stumpf that the "immediately given" is the subject-matter of psychology. Herein, he holds, psychology has an epistemological advantage over the other sciences ("Zur Einteilung der Wissen-

deals with concepts reflectively formed, not with immediate experiences,¹³ yet the peculiarity of psychology is precisely this, that it has to do with the concept of *immediate experience*. That which can not be immediately experienced is, in other words, no object of psychology. Now, the commonest objection to the doctrine that psychology is science of the self is the belief that self-consciousness is a relatively late stage in conscious experience.¹⁴ This objection is due, I think, to the neglect of the distinction between the ever-present inchoate self-consciousness of each experience and the reflective consciousness of self which I have tried, in this paper, to formulate. In the former sense only, all consciousness is self-consciousness, that is, one never is conscious at all without an awareness, however vague, confused, unanalyzed, and unexpressed, of oneself-being-conscious. (Of course, I make this assertion on the basis of my own introspection—for there is no other way of making it—and it is open to others to disavow this experience. Such a denial of self-consciousness must, however, itself be based on introspection; and I believe that those who deny, always by their own account betray, this same vague and intimate awareness of self.) And if this be granted, it is evident that we must form our concept of consciousness from this, "the only experience immediately accessible to us."¹⁵ It follows that there is no middle course between the conclusion that an animal or a baby is unconscious and the inference that it possesses self-consciousness of the dim and undifferentiated sort already described. Such consciousness, it must be repeated, lies at a far remove from the reflective self-consciousness of the psychologist.

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schaften," Abhandlung der kgl. preuss. Akad., 1907, p. 21; cf. also the monograph earlier cited). Professor Pillsbury's criticism of self-psychology, already quoted, proceeds entirely on the false assumption that the self is "presupposed," not "found."

¹³ Cf. K. F. Pearson, *op. cit.*, Chapter II., § 6; and W. C. D. Whetham, "The Recent Development of Physical Science," Chapter I.

¹⁴ Cf. Titchener, *Philosophical Review*, Vol. XV., p. 94. For a similar misconception, cf. A. E. Taylor, "Elements of Metaphysics," Bk. IV., Chapter III., §§ 4-5. For another statement of my own position, cf. *Psychological Review*, Vol. XIII., pp. 67, 68, and note.

¹⁵ Cf. my paper on "The Limits of Genetic and of Comparative Psychology," *The British Journal of Psychology*, Vol. I., p. 283. For argument that the nature of animal consciousness must be inferred from that of our own, cf. Ward, *op. cit.*, p. 25.

DISCUSSION

PROFESSOR PIERCE'S VERSION OF THE LATE "SYMPOSIUM ON THE SUBCONSCIOUS"

IN the number of this JOURNAL for September 12, Professor Pierce, after reviewing the contributions to the recent symposium on the subconscious in the *Journal of Abnormal Psychology*, sums up the discussion by assigning the honors "unhesitatingly to those who prefer the physiological interpretation." With this verdict, as one who took part in the symposium, I hope I am too good a sportsman to take issue, and it is not for that purpose that I now take up my pen. What I do wish to call in question is the reading which Professor Pierce has given to the contribution of at least one who took part in the discussion—Professor Janet. It is important that one who has not read the symposium should have a correct version of the position maintained by the several contributors. Professor Pierce makes the surprising statement that "of the five contributors only one [myself] comes out fully and freely in favor of the doctrine; while, of the others, two [Professor Münsterberg and Professor Ribot] are avowedly averse to it; one [Professor Janet] is somewhat ambiguous, though probably to be reckoned on the side of the opponents; and one [Professor Jastrow] struggles valiantly against the necessity of committing himself." I regret that I can not claim the honor of alone being fully and freely in favor of subconscious ideas. I wish I could; but if I did I doubt not I should soon be made to realize the enormity of my assumption.

In summarizing Professor Janet's paper, the reviewer goes on further to state that "in its theoretical portion it is evasive, non-committal on the vital issues, and . . . inconsistent with itself."

One is not surprised at this statement when one reads in the next sentence that "the paper's most surprising quality comes from the distinct disavowal of the 'fine theories' in accordance with which other writers have employed the word subconscious 'in a sense infinitely more ambitious' than that which he has meant to give it from the time of his earlier publications."

It is true that Professor Janet refuses "to discuss" (not disavows!) certain "fine theories which seduce," as he says, "certain minds by their scientific appearance," but if Professor Pierce will read the paper once more and carefully, he will find that the "fine theories" (p. 63) are the very ones that he himself upholds, namely, the physiological interpretation of subconscious and other nervous phenomena, and not the psychological interpretation. In truth, in the sentence above quoted and in succeeding sentences, Professor

Pierce has jumbled together several distinct and separated thoughts of Professor Janet's, after removing each from its own context where it had its proper meaning.

For instance: When Janet refers to other writers using the term subconscious "in a sense infinitely more ambitious" (p. 62), it should be evident to any one familiar with the subject that he refers to philosophical doctrines, like the "subliminal" of Myers, and not to the psychological interpretation of hysterical phenomena: and when he says that, for him, "the word subconscious is the name given" to certain clinical phenomena observed in hysteria, etc. (p. 65), he means that he has confined his studies to hysterical phenomena, and does not care to enter into wider generalizations. In thus misconceiving Professor Janet's argument, Professor Pierce reads that Professor Janet disavows the *psychological* interpretation of these clinical phenomena and uses the term as "a mere descriptive device involving in no way the intention to give a theoretical interpretation of the facts." Such a reading is so entirely contradictory of all that Professor Janet has written in his many volumes that the reviewer exonerates those who have misunderstood Professor Janet on the ground of the ambiguity (!) of his writings. No wonder, after such an interpretation of this paper, Professor Pierce is knocked in a heap to find Professor Janet stating at the end of the paper that the term subconscious is to be applied "to the conscious states which are in coactivity at any moment." No wonder he is dumbfounded and thinks Professor Janet "is occupying a self-contradictory position," or else "that his meaning of conscious is quite at variance with the usage of a technical psychology." How any ordinary reader, even without any personal experience with the abnormal phenomena in question, could read Professor Janet's books and imagine that the author holds the *physiological* interpretation of the "subconscious" is something that is bewildering, and when the reader aspires to be a critic the fact passeth understanding. Why, the whole basis, the very foundation, of Janet's doctrine of hysteria is dissociated ideas, not physiological processes; and if one thinks that this investigator has recanted, one has only to take the trouble to read his latest book, "Lectures on the Major Symptoms of Hysteria" (1907), where his theories are restated.

But more incomprehensible still is the fact that any critic could read Professor Janet's article in the symposium and find in it a recantation—that the author does not interpret the clinical phenomena as the manifestation of subconscious ideas. Indeed, referring to certain hysterical phenomena, Janet asks (p. 62): "Are we not obliged to conclude, as in the preceding case, that sensations are really conserved, although the subject tells us that he does not feel

them?" and again (p. 63): "The assimilation of the conduct of the somnambulist, of the execution of the suggestion, of a page of automatic writing with incoördinate convulsive movements is pure childishness. These diverse acts are identical with those which we are accustomed to observe in persons like ourselves and to explain by the intervention of the intelligence. Undoubtedly one may say that a somnambulist is only a mechanical doll, but then we must say the same of every creature. These are useless reveries. In our ignorance, we simply know that certain complex facts, like an intelligent reply to a question, depend upon two things which we believe associated: superior cerebral mechanism and a phenomenon which we call an effect of consciousness. We find the same characteristics in the so-called subconscious phenomena, and we must suppose back of them the same two conditions." Here Professor Janet goes so far as to assert that to classify somnambulistic and similar phenomena with mere physiological processes ("incoördinate convulsive movements"), that is to say, to deny consciousness, "is pure childishness"! and that we have the same right to interpret such phenomena as the effect of *consciousness* as we have to do so with the intelligent reply of a person like ourselves. Surely this is not "evasive," nor "non-committal," nor "inconsistent with itself."

Mind you, I am not arguing that Janet is right in this interpretation, only that there is no doubt as to what Janet's opinion is and that he is not to be classed with the opponents of the psychological interpretation. This is so obvious that I can only attribute Professor Pierce's misunderstanding to an entire lack of familiarity with somnambulism, automatic writing, and similar phenomena, as well as with ordinary physiological processes.

And here arises a question of some importance: Is the psychologist, who has no personal experience with the phenomena in question, competent to judge their interpretation? Professor Pierce thinks he is so long as it is a matter of interpretation (as it certainly is), "provided only that he can trust the facts reported by the physician." I am forced to the conclusion that he is not. The interpretation of the phenomena of abnormal psychology in no way differs in method and principle from the interpretation of the facts of other branches of science, of bacteriology, of radioactivity, of gravitation, of astronomy, of physics in general. We may have sufficient facts for an interpretation in one case as in another, or we may not. But what would a bacteriologist answer me if I, who have no personal experience with the phenomena of bacteria, undertake to interpret them; to express views on the theory of immunity from disease? Or what would an astronomer say to my views on the

canals of Mars when I had never even seen the lines on the surface of that planet through a telescope? I am afraid I should have scant hearing. If there is one thing that is recognized in science, it is, I believe, that a person must have a first-hand knowledge of phenomena in order to weigh their meaning correctly. I must believe that it is from a lack of such experience that Professor Pierce has overlooked the greater part of the evidence which I attempted to collect briefly, and partly has misconceived my position regarding that which he does note. He states that the argument presented "turns chiefly on two points," viz., those of *continuity* and the inadequacy of *awareness* as a test of the unity of consciousness.

The matter of unawareness was not intended as an argument at all, but only as a statement of a difficulty in understanding the subconscious, and its unimportance as a characteristic of subconscious ideas was discussed. The fault may have been mine in that I was not sufficiently lucid in my language, and used the word *test* in a loose way. But the point I wish to make is that if Professor Pierce were personally experienced in the phenomena of the subconscious—as he allows us to infer he is not—he could not have overlooked the force of the evidence summarized in the third, fourth, fifth, sixth, and seventh classes of evidence. The third class alone is so weighty that any one who has made such experiments must be impressed by its force, yet the reviewer passes it over as if it meant nothing to him and he had no realization of its import. All this makes me realize, as I hardly did before, that to interpret phenomena we must have personal familiarity with them.

I will conclude by describing three experiments out of a series which I have recently been making for the purpose of proving—so far as that word is admissible—the theory of subconscious ideas. I am unable to understand how the results obtained permit of any other interpretation than the psychological one.

BA is a case of double personality of which one personality may be designated by *A* and the other by *B*. Observation extending over many months has shown that *A* has no knowledge of *B*, but *B* is completely aware of *A*; that is, *A* has amnesia for the state *B*, while *B* has no amnesia. *B* can be hypnotized, and in hypnosis is known as *b*. On awakening from hypnosis, *B* has no recollection of *b*. Now the important point for our present purpose is that *B*, both when awake and when in the hypnotic state as *b*, claims to be subconscious (co-conscious) with *A* when that state is to the fore; she claims to have perceptions, thoughts, and feelings distinct from and synchronous with the mental life of *A*; she describes them with precision and specifically. Of all this claimed subconscious life *A* has no knowl-

edge. The question is, Can *B*'s (and *b*'s) claim be verified even in part? She herself says, "I *know* it is so, but that is not proof for another person." To obtain evidence that would justify the inference, I arranged the following tests among others: It was agreed with *b* that when subconscious she should do a particular sum, which was to calculate the number of seconds intervening between two given times of the day. The figures indicating the time were not to be given until *A* was present, so that *b* thus far knew only the nature of the task, not the task itself. It was necessary, of course, to convey to subconscious *b* the information without at the same time informing *A*, and without producing any of those artificial dissociations which frequently follow when communicating with the subconscious. It was, accordingly, agreed that *A*'s attention should be engaged by having her write some verse with which she was familiar on a sheet of paper, on the margins or in the corners of which the required figures for the sum would be unobtrusively written. It was expected that *A* would not notice the figures if her attention by a little art was centered upon the verse as the important thing, but at the same time it is evident that it did not matter if she did, as the figures could have conveyed no idea to her, either as to their meaning, or as to the nature of the task, or whether she was expected to do anything with them, for *A* was kept entirely in the dark regarding the nature of the experiment. On the other hand, if *b* was truly subconscious, as she asserted, she should be able to recognize the figures, interpret them, and possibly make the computation. In one of the tests the following figures were written as above described: 3.15
4.33

It is plain that to one who had not been previously instructed these figures might have meant dollars and cents, or anything else; no one could have guessed what was wanted from them. As a matter of fact, they indicated fifteen minutes past three and thirty-three minutes past four. The problem was to calculate the difference in time in seconds. *A* was directed to write the verse, and at the same time to speak the words aloud in order to make sure that she was in an alert state. (In doing this she kept up a running fire of comment on the content of the verse, sometimes laughing at the poet's thought—showing she was thoroughly alert.) After finishing it was found that she had not noticed the figures. She was now changed to *b*. It had been arranged previously with *b* that she was to give the answer immediately on "coming," without delay, before she could have time to make the computation from memory in case it had not been done subconsciously. *b* now, the moment she came, almost shouted the answer, 4680. (She further described, in detail, the

mental processes she went through subconsciously to arrive at the answer.)

In another experiment *B*, who up to this time knew nothing of the experiment, similarly gave the answer.

In order to meet the possibility (however improbable) of *b* and *B* having made the calculation after "coming," notwithstanding the shortness of time at their disposal—a few seconds—it was arranged that the computation should be written automatically while *A* was conversing. The figures were 1.43 and 3.39. As a result, the hand wrote out the calculation while *A* was alert as before, but, of course, without awareness of her hand.

There was a slight error in the answer, the hand making the elapsed minutes 114 instead of 116. This obviously is of unimportance. Of importance is the fact that the hand explained, in part, the steps of the problem, thus: "1.43 to 3.39 would be two hours less" [four minutes] (this sentence was unfinished). Then the number 114 was written and multiplied by 60, which was placed under it in the conventional manner, and the answer 6840 obtained; thus

$$\begin{array}{r} 114 \\ 60 \\ \hline 6840^1 \end{array}$$

Again: I taught *B* some dozen characters of a shorthand which I make use of in note-taking. Most of these symbols, I believe, are purely arbitrary, of my own invention. As soon as *B* had memorized them I changed her to *A*, and wrote the following: I (| a √ of |. This was shown to *A*, to whom it meant nothing; but the hand promptly translated it, writing automatically, *I have had a time of it* (correct).

Now here something outside of *A*'s consciousness, without previous knowledge of the symbolized idea, recognized the characters, read them, and translated them, something that in our experience can only be defined as conscious intelligence.

Considering the conditions under which these experiments were made, that *A* knew nothing of their nature, that *b* and *B* did not know what the particular problem was to be, that the figures were not visible until *A* began to write the verse, and that *A* did not know the shorthand characters, the conclusion seems inevitable that they, figures and symbols, must have been *interpreted* subconsciously even if *A* saw the former (which apparently she did not do), for *A*

¹ On the first trial the hand made the mistake of multiplying twice by 60 (the second time incorrectly). When told "wrong," it wrote, "I can't do it as well when it is on paper. Are the hours right? 1.43 to 3.39." Then, as above, multiplied 114 by 60 correctly.

could not have known what any of them meant, and that the calculations and translation must have been made subconsciously; accordingly, the memory of *b* and *B* for the subconscious calculations must have represented the facts. That such perceptions, interpretations, calculations, and translations could have been made by pure *physiological processes without thought* is inconceivable and not substantiated by anything that we know of physiological processes.

I am inclined to think, although I should not have ventured to use the expression, that Janet is right in saying that to attempt to assimilate such actions with mere physiological processes "is pure childishness."

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REVIEWS AND ABSTRACTS OF LITERATURE

Beyond Good and Evil. Prelude to a Philosophy of the Future. FRIEDRICH NIETZSCHE. Authorized translation by Helen Zimmern. New York: The Macmillan Co. 1907. Pp. xv + 268.

Thus far, Nietzsche tells us, philosophers have sought to justify morality instead of making it a problem. An unprejudiced examination, however, such as has never been made, because no one has dared to make it, will reveal the danger and immorality of morality. It is based upon pity and the negation of healthy life instincts, it stands for self-denial and the renunciation of healthy egoism, it sets up false values and has corrupted and debased humanity, it has produced a sublime abortion of man. Our pity-morality is the morality of slaves, the morality of gregarious animals (*Heerdentiermoral*); it has changed the wolf into a dog, man into a domestic animal; it is the morality of the failures that protects the weak against the strong.

It is the business of philosophers to break the old tables and values and to put new ones in their stead; they ought to be commanders and lawgivers; their true function is to transvaluate the old values, to create new ones. The morality which is to take the place of the old must affirm the very instincts which have been denied, the healthy, robust, exuberant, life-loving instincts. The will to life, which is the will to power, is the ideal; and whatever tends to produce powerful individuals, the higher type of man, is good. The ideal is not the green-meadow happiness of the herd, but the breeding of the most world-approving, exuberant, and vivacious man; and the morality that produces such a man is "beyond good and evil," beyond the traditional pity morality. The few, the great men, the overmen, alone are worth while; the many, the pygmies, the commonplace, the mediocre, the masses, do not count. The morality of the lords is the morality of health and power, the only true morality. The aristocrat fixes all values, and he values himself alone; he and his equals are good; the lords have no duties to their inferiors, but only to

their equals. "The essential thing, however, in a good and healthy aristocracy is that it should *not* regard itself as a function either of the kingship or the commonwealth, but as the *significance* and highest justification thereof—that it should, therefore, accept with a good conscience the sacrifice of a legion of individuals, who, *for its sake*, must be suppressed and reduced to imperfect men, to slaves and instruments. Its fundamental belief must be precisely that society is *not* allowed to exist for its own sake, but only as a foundation and a scaffolding, by means of which a select class of beings may be able to elevate themselves to their higher duties, and in general to a higher *existence*." "The noble type of man regards *himself* as a determiner of values; he does not require to be approved of; he passes the judgment: 'What is injurious to me is injurious in itself;' he knows that it is he himself only who confers honor on things; he is a *creator of values*. He honors whatever he recognizes in himself: such morality is self-glorification. In the foreground there is the feeling of plenitude, of power, which seeks to overflow, the happiness of high tension, the consciousness of a wealth which would fain give and bestow; the noble man also helps the unfortunate, but not—or scarcely—out of pity, but rather from an impulse generated by the superabundance of power. The noble man honors in himself the powerful one, him also who has power over himself, who knows how to speak and how to keep silence, who takes pleasure in subjecting himself to severity and hardness, and has reverence for all that is severe and hard. . . . The noble and brave who think thus are the farthest removed from the morality which sees precisely in sympathy, or in acting for the good of others, or in *désintéressement*, the characteristic of the moral; faith in oneself, pride in oneself, a radical enmity and irony towards 'selflessness,' belong as definitely to noble morality as do a careless scorn and precaution in the presence of sympathy and the 'warm heart.' . . . It is the powerful who *know* how to honor, it is their art, their domain for invention. The profound reverence for age and for tradition—all law rests on this double reverence—the belief and prejudice in favor of ancestors and unfavorable to newcomers, is typical in the morality of the powerful; and if, reversely, men of 'modern ideas' believe almost instinctively in 'progress' and the 'future,' and are more and more lacking in respect for old age, the ignoble origin of these 'ideas' has complacently betrayed itself thereby. A morality of the ruling class, however, is more especially foreign and irritating to present-day taste in the sternness of its principle that one has duties only to one's equals; that one may act towards beings of a lower rank, towards all that is foreign, just as seems good to one, or 'as the heart desires,' and in any case 'beyond good and evil': it is here that sympathy and similar sentiments can have a place. The ability and obligation to exercise prolonged gratitude and prolonged revenge—both only within the circle of equals—artfulness in retaliation, *raffinement* of the idea in friendship, a certain necessity to have enemies (as outlets for the emotions of envy, quarrelsomeness, arrogance—in fact, in order to be a good *friend*): all these are typical char-

acteristics of the noble morality, which, as has been pointed out, is not the morality of 'modern ideas,' and is, therefore, at present difficult to realize, and also to unearth and disclose."

The central theme running through this book and all of Nietzsche's books is the aggrandizement of the will to power and self-assertion, and the corresponding deprecation and depreciation of the sympathetic side of human nature. Life is portrayed as something fierce and brutal, something that must be so in the very nature of things, and something that ought to be so. Out of the battle are supposed to emerge strong, robust men, overmen, the only kind that are worth while. Since the higher type of man can not be produced except through war, pain, suffering, and injury to the weak, these things are good. Somebody has to win, somebody has to lose, and to the victor belong the spoils. Moral rules and restrictions, and maudlin sympathetic promptings, hamper the victor in his bloody work; they are the shrieks of the cowards who are down and out. Religions, like Christianity, which encourage self-renunciation and the gentler virtues, and humanitarian movements in politics which preach equality and progress, are inconsistent, in Nietzsche's opinion, with the realization of the ideal.

All this is, of course, a gross exaggeration of faint glimmerings of truth and a gratuitous reversal of values. Nietzsche is an explosive, hysterical thinker, lacking in the Apollonic calm of the truth seeker; he takes a stubborn pride in saying *no* where others have said *yes* before him. He delights in glaring contrasts and startling antitheses, which, though they "make the unskillful laugh, can not but make the judicious grieve." He exaggerates the will to power, he exaggerates the fierce aspects of life, he exaggerates the value of self-assertion, he exaggerates the harmfulness of pity. Life is not the noisy, furious, bloody battlefield described by him, and it is certainly not in such an environment that we look for the "higher" types of men. No doubt the "robustious periwigged fellows" set up by him as ideals are satisfied with themselves and value themselves alone, but it is not to be expected that the rest of us should make footstools of ourselves for their glorification. We shall go right on believing that the "blonde beast" is something to be overcome, that it is a "passage" and will pass away; and if we refuse to accept the "higher type" which Mr. Nietzsche has been thinking out for us to grovel before, what is he going to do about it? Values can not be created by self-constituted lawgivers, and the function of ethics is not to reverse all values, but to understand the meaning and purpose of morality as it has come to be. The creating and legislating business may be a very satisfactory and dignified occupation, but philosophers must content themselves with the more modest task of discovering the values to which mankind has given expression and which it is striving to realize in all its institutions. As a protest against effeminacy, hyper-sentimentalism, misguided sympathy, and exaggerated socialism, Nietzsche's book mirrors certain undercurrents in the thinking of our age, but as a serious contribution to the science of ethics or as a

practical guide to life, it does not possess the value which the writer of the introduction claims for it.

The English translation, though faithfully reproducing Nietzsche's thought, sounds tame and flat as compared with the original, but that can not be helped. It is not easy to serve as interpreter for a writer who revels in epigrams and paradoxes, and seeks to deluge the reader with a flood of clever phrases.

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The Roots of Reality: E. BELFORT BAX. London: E. Grant Richards. 1907. Pp. xi + 331.

Although Mr. Bax has previously published two books on philosophy and has translated two others, he is more generally known as a Fabian socialist and as the author of several volumes of historical sketches. One who turns, however, to this volume with the expectation of finding something more than the usual threshing of metaphysical problems is apt to be, at first, rather disappointed. The issues taken up in this book are likely to appear somewhat threadbare, while the highly starched neo-Hegelian terminology is not apt to prove very attractive to the layman. Nevertheless, the careful reader will not fail to observe a good deal of shrewd insight and an unconventional spirit which is rather refreshing.

Believing that contemporary philosophic discussion is devoted too much to criticism and too little to constructive thought, Mr. Bax wishes to outline the directions that future philosophic thinking must take. Such an attempt obviously depends upon what the author conceives the present philosophic situation to be. As Mr. Bax views it he finds idealism in undisputed possession of the field. Its one opponent is the empiricism of the school of Mill, Spencer, and Lewes, and to argue against it is like whipping a dead horse (p. 296). Of the existence of pragmatism he is, indeed, aware, but he sees in it (grouping it with the writings of Münsterberg!) nothing but a repetition of Schopenhauer. The more recent realistic movement is practically ignored. Mr. Bax, therefore, takes his idealism for granted. That consciousness, actual or potential, is all there is to reality, he regards as an axiom which is the indefeasible result of the whole history of philosophy. Common sense, he admits, does take for granted the existence of an objective reality other than consciousness itself, but this is a vulgar error. Philosophic analysis shows that the object is nothing but the subject's own negative determination (p. 18). Mr. Bax, however, is not a solipsist. "To say that the whole system of things stands or falls with your or my individual consciousness or psyche is a palpable absurdity" (p. 15). Hence he is forced to qualify his axiom and to assure us that by consciousness he does not mean what is commonly understood by that name, and which is an affair of this or that individual. He means something more exalted, viz., consciousness as such. Just exactly what relation this "consciousness as such" bears to the individual minds (or particular memory syntheses, as Mr. Bax

prefers to call them) we are not told very explicitly. It is the sempiternal mystery (p. 17) and a problem perhaps insoluble (p. 262).

Mr. Bax is quite certain that "consciousness as such" is not a separate mind. The theistic hypothesis of a separate and concrete self-consciousness or divine mind fails to explain anything and is open to ethical objections. On the other hand, it is not a plurality. "Pluralism as an ultimate formulation of the principle of reality is hardly adopted, at least explicitly, by any serious metaphysical thinker in the present day" (p. 259). The Bradleian absolute is rejected as being, after all, itself merely a bundle of "adjectives," and Royce's absolute rests on a false analysis of the infinite. At times Mr. Bax is inclined to identify his "consciousness as such" with the Kantian transcendental unity of apperception, while at other times he conceives it as more like the Fichtean ego. At bottom, however, Mr. Bax, as a good Englishman, is agnostic and an enemy of absolutism. The ultimate subject of consciousness may not be more than the bare abstract possibility of individual consciousness (p. 125) each of which perishes in time; and the unity demanded by the self-consistency of consciousness is not that of a wound-up whole or of an eternally actual experience, but simply a unity of direction (pp. 269-71).

But while Mr. Bax is an idealist he is, like Bradley, opposed to its panlogistic form. This leads him to a distinctive dualism and to a vigorous emphasis on the alogical element of reality. Not only is the alogical an indispensable element of reality, it is also the primary one. Panlogistic Hegelians regard the *objective* element of reality as due to thought. In his opposition to them, Mr. Bax slips into the position of British empiricism and regards it rather as given by sensation which is alogical.

The four fundamental modes of opposition between the logical and the alogical are, according to Mr. Bax, the antitheses between the universal and the particular, being and appearance, infinite and finite, and chance and law. The first of these antitheses is pushed so far that it is difficult to see how the two terms can ever be brought together. The concept is always universal and never can touch the *thisness* of the object.

In this connection there is a very interesting argument for the reality of chance as opposed to law. The view that denies the reality of chance follows only from panlogism. If we hold that reality is not entirely reducible to pure law, then we have a basis for chance in the alogical remainder. Neither causality nor any other category is applicable to the uniqueness of any event. Why I am I and not somebody else can not be explained by the causal relation.

Under the caption of the "Higher Consciousness" we have a discussion of the elements of human culture. The object of science, philosophy, art, and ethics is to pluck things "out of the swamp of indefinite numerical repetition . . . in which, on the plane of common-sense consciousness, reality is immersed" (p. 180). Science reduces the manifold of phenomena to categories, to laws and relations, but philosophy recognizes that these universals do not contain the whole reality. Philosophy itself,

being confined to the medium of reflection, is the last word of the logical. All it can do is to reduce everything to the unity of abstract thought. Art, in its effort to reduce the manifold to the unity of abstract feeling, goes farther. The esthetic abstraction beauty does combine the qualitative particular, the *thisness* of feeling, with the universal (p. 129). Similarly ethics is the reduction of the indefinite manyness of particular, independent, contradictory human interests to the unity of a common standard, viz., the universal common interests of humanity. The canon of philosophy as well as of art and ethics is, in the last analysis, alogical. The ultimate postulates that some things are beautiful and others ugly, that some things are more desirable than others, and that some propositions are true while others are untrue, are indemonstrable. The very test of truth, consistency, itself ultimately depends on feeling, viz., intellectual satisfaction.

In ethics panlogism harps on the distinction between action dominated by reason and action dictated by impulse. Against this Mr. Bax insists that the ultimate end of all action can be nothing but feeling. You can not reason a man into his *telos*, he must first have the impulse to it. Reason simply helps to bring into clearness the nature of the end, and the relation of all the means thereto.

The antithesis between freedom and necessity is simply another form of the opposition between the logical and the alogical. Reason proclaims universal law, while "feeling in its immediacy proclaims spontaneity of motive and action on the part of the individual will" (p. 183). This antinomy can never be solved in thought terms because it is the very function of thought to reduce the particular to the universal, the spontaneous to law, the contingent to the necessary.

With regard to the fundamental idealism of this book, detailed criticism would amount, after all, to a gratuitous difference of opinion between the reviewer and the author. One may, however, point out the incompatibility between Mr. Bax's confident assertion in the earlier parts of the book that "such and nothing else is the ultimate nature of reality" (p. 36) with the agnosticism and the vehement denial of the possibility of the knowledge of finality in the latter parts of the book.

As to the manner of exposition, most readers will probably complain of a certain slowness in getting down to real issues; and the frequent repetitions rather obscure the argument. Mr. Bax also has the rather irritating habit of now and then patronizingly foisting his own triumphant opinions upon Plato, Kant, or Hegel. As a whole, however, the book is both timely and suggestive. Present-day realists, as well as idealists, seem to have agreed to ignore the agnostic, and we sorely need a vigorous agnosticism to wake us from our dogmatic slumbers and to warn us that the Kingdom of Heaven is not to be taken by violence.

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Mehrfähigkeit und Assoziationsversuch. M. PAPPENHEIM. *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, Band 46. Pp. 161-173.

By a number of experiments on himself and on others Dr. Pappenheim has tried to set forth the conditions which underlie such changes in repeated reactions as forgetfulness, increased reaction time, and variations in the second reactions to the same stimuli. After having given a series of stimuli and noted the resulting associations called up, he repeated the series of stimuli and noted the resulting variations. When trying the experiment on himself, by means of an assistant, he found that in some cases the reaction times were increased and in other cases associations different from the first were recalled. In several cases he had a feeling of conflict and inhibition. Similar tests were given by Dr. Pappenheim to others, with much the same results.

If a stimulus tends simultaneously to excite two conflicting dispositions, according to Dr. Pappenheim, fluctuation or even inhibition may result. An association different from the first may then become focal. The strength of the association or the influence of an accompanying feeling-tone may operate to produce lengthened reaction time in the second repetition of the stimulus. If the ties of association are weak or are arrested by feeling, the reaction time is thereby lengthened. Another aspect pointed out is the tendency to forgetfulness in the case of associations which are different in the second series. Such variations in the second excitations may be considered as a degree of forgetfulness.

As regards the technique of presentation, I think that a better method of arrangement could be followed. Dr. Pappenheim first describes an experiment of his own, comments on it, cites another author, comments on his work, brings in another experiment of his own, and goes over the whole process again, comment, citation, etc. Instead of such a pepper-and-salt arrangement, I should suggest that the historical portion be given in one section, the original tests in another, and the critique and comment in a third. Finally, the title is somewhat misleading. It leads one to believe that the paper is one on multiple personality, or of dissociation of personality, etc. A better title might be "Kampf und Schwankung der Bewusstseinsdispositionen," or "Apperzeption und Assoziation," or "Mehrfähigkeit der Wiederholungen," *u. s. v.*

FELIX ARNOLD.

NEW YORK CITY.

JOURNALS AND NEW BOOKS

RIVISTA FILOSOFICA. May-June-July, 1907. *Nominalismo e realismo geometrico* (pp. 281-299): A. FAGGI. - A reply to Federico Enriques ("Problemi della scienza," Bologna, 1906), in so far as the latter describes Kant as holding a phenomenalistic conception of space. Kant described space as an intuition. *Fede e ragione* (pp. 300-331): G. SALVADORI. - Opinion in matters of faith has social consequences which

make it of more than merely speculative importance. As opposed to faith, reason has been hostile to the idea of control by ethical principles. Religions have hitherto depended upon principles of only temporary authority. To be continued. *Conoscere-operare* (pp. 332-349): G. MAZZALORSO. - More important than absolute knowledge is the certainty that can be attained through our natural resources. Most important are those lines of inquiry which have most affinity with action, viz., economics, ethics, right. *A proposito di libertà* (pp. 350-373): G. NOLLI. - An account of the opinions of Cantoni concerning the problem of freedom. Cantoni's position is Kantian, but inconclusive. *Dualismo biologico e limite della responsabilità penale* (pp. 374-385): R. MONTUORI. - Continued from previous number. Though it may be impossible to prove real responsibility, there is a negative criterion for determining where responsibility ceases. Reaction is determined whenever the primary conditions of life are attacked. Will is capacity for inhibition, and responsibility may be imputed for whatever acts can be arrested by the will. *Rassegna bibliografica. Opere di:* Filareto, Alfred Binet, A. Rivà, Francesco Orestano, A. Lalande. *Notizie e pubblicazioni. Sommari delle riviste straniere. Libri ricevuti.*

De Wulf, M. *Scholasticism Old and New, an Introduction to Scholastic Philosophy, Medieval and Modern.* Translated by Professor P. Coffey. Dublin: Gill & Son; London: Longmans, Green & Co. 1907. Pp. xvi + 327.

Fouillée, Alfred. *Morale des idées-forces.* Paris: Felix Alcan. 1908. Pp. lxiv + 391.

Hall, H. Fielding. *The Inward Light.* New York: The Macmillan Co. 1908. Pp. viii + 228. \$1.75 net.

Venn, John. *The Principles of Empirical or Inductive Logic.* London: Macmillan & Co. 1907. Pp. xx + 604.

NOTES AND NEWS

IN the *New York Medical Journal* of December 28 Dr. John E. Dorley, physician for nervous diseases at St. Joseph's Hospital, Providence, R. I., defends pragmatism as a correct theory for clinical practise. The following extracts are from a reply to criticisms made by Dr. F. X. Dercum: "The problem to be solved is this: Are those conditions which are now labeled with the names hysteria, hypochondria, and neurasthenia to be regarded as distinct affections, presenting fundamental differences, or do they actually possess such close relationship as to warrant their description as different manifestations of the working of one underlying psychophysiological principle? Those who believe with Dr. Dercum subscribe to the first alternative; for myself, I feel that sufficient evidence of one sort or another is at hand to warrant at least a tentative allegiance to the second. Reduced to its lowest terms, the question becomes one of the

interpretation of certain facts which are matters of common observation." Dr. Dercum describes neurasthenia, according to Dr. Dorley, psychologically, as "fatigue neurosis." Dr. Dorley describes it as disintegration of personality, meaning by "personality" a concrete individual in his environment. "The frankly psychological description of neurasthenia is a description from the point of view of the patient and not of the physician. It endeavors to symbolize in thought the direct, concrete, immediate experience of an individual, which individual finds a certain type of difficulty in adapting himself to his environment for the purpose of carrying out his interests and purposes. Whoever presents this special type of maladjustment to environment we say is in a condition of neurasthenia. When studied by an outside observer, this neurasthenic person may present one or more known or unknown physiological conditions, which are properly termed the physical substrata of neurasthenia. According to this hypothesis, neurasthenia is not a definite, circumscribed, morbid entity, but rather a concrete, living *process* of personal maladjustment to a constantly changing environment. It is a conception with a certain elasticity about it, for the reason that the life it attempts to describe has the same elasticity." But the physician must have a description made from the physician's point of view. "From what has already been said it may very easily be seen that the position I have assumed is that of pragmatism. And, although this is not a paper on philosophy, nevertheless it may not be amiss to say a word about pragmatism; for it is, I believe, a method by the aid of which otherwise warring factions may be brought into harmony with one another. In this very matter of neurasthenia, the pragmatist is quite willing to admit that several descriptions may have their justification. All he asks is that each of them be capable of fulfilling the pragmatic test, namely, that it 'works' successfully. . . . Let us now measure by this pragmatic test the hypothesis that describes neurasthenia as a disintegration or dissociation of personality. Does it 'work' pragmatically? I suppose no one will deny that the physician is interested primarily in bringing his patients, if possible, back to health. His purpose in studying them and in making a diagnosis at all is to give him a point of departure for treatment. Does the hypothesis of disintegrated or dissociated personality give him this point of departure? Is it, in other words, a general conception which will lead him about among his living neurasthenic patients? I think that it is; not, however, in the sense that it stands for the whole truth, but in the sense that it helps him to deal with concrete realities. And this is what pragmatism desires." It is apparently a "psychological" description which distinguishes between hysteria, hypochondria, and neurasthenia, whereas a clinical description unifies them.

THE sixteenth annual meeting of the American Psychological Association was held at the University of Chicago on Tuesday, Wednesday, and Thursday, December 31, 1907, and January 1 and 2, 1908. The meeting was held in affiliation with the American Association for the Advancement of Science, the American Society of Naturalists, and the

Western Philosophical Association. On Tuesday afternoon the Association met with the Naturalists and other societies in a joint discussion on "Cooperation in Biological Research." On Wednesday morning the Association joined with the Western Philosophical Association in a discussion on "The Relations of Ethics to Philosophy and Psychology," which was followed by a "Symposium on Value." On Wednesday afternoon, at a joint session with the newly organized Section of Education of the American Association for the Advancement of Science, was presented the report of the Committee on Measurements. The sessions of Thursday were also practically joint sessions with the Western Philosophical Association. The attendance of members of the Association was about fifty; there were many visitors, among them being Dr. W. H. R. Rivers, of Cambridge, England. Among the social features may be mentioned the reception to the visiting societies tendered on Monday evening by the President and Board of Trustees of the University of Chicago; the annual dinner of the Society of Naturalists, on Tuesday evening; and the joint smoker with the Western Philosophical Association at the Quadrangle Club, on Wednesday evening. The business meeting also was held on Wednesday evening, and the following officers were elected: President, Professor George M. Stratton, of Johns Hopkins University; Secretary-treasurer, to serve three years, Professor A. H. Pierce, of Smith College; members of the Council, to serve three years, Professor Raymond Dodge, of Wesleyan University, and Professor R. S. Woodworth, of Columbia University.

ACCORDING to the preliminary notice, the Southern Society for Philosophy and Psychology will hold its third annual meeting in Washington, D.C., at the time of the session of the Department of Superintendence of the National Educational Association, February 25-27. A reduced railroad rate of one and one third fare will be available. Detailed information will be furnished later. In order to facilitate the preparation of the program, it is requested that members intending to present papers at this meeting will acquaint the secretary with the titles of such papers and their scope. The officers of the Society are: President, Professor J. Mark Baldwin, Johns Hopkins University; Vice-president, Professor Edward A. Pace, Catholic University of America; Secretary-treasurer, Professor Edward Franklin Buchner, University of Alabama. Additional members of the Council: Principal Reuben Post Halleck, Louisville, Ky., Professor James Macbride Sterrett, George Washington University, Professor A. Caswell Ellis, University of Texas, Dr. William T. Harris, Washington, D. C., President D. B. Purinton, West Virginia University.

IN the review of Miss Welby's translation of Koenigsberger's "*Herman von Helmholtz*," which appeared in this JOURNAL, Vol. IV., No. 26, the translation, which is by Miss Frances Welby, is erroneously attributed to Lady Welby.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

WHAT DOES PRAGMATISM MEAN BY PRACTICAL?¹

PRAGMATISM, according to Mr. James, is a temper of mind, an attitude; it is also a theory of the nature of ideas and truth; and, finally, it is a theory about reality. It is pragmatism as method which is emphasized, I take it, in the subtitle, "a new name for some old ways of thinking." It is this aspect which I suppose to be uppermost in Mr. James's own mind—one frequently gets the impression that he conceives the discussion of the other two points to be illustrative material, more or less hypothetical, of the method. The briefest and at the same time the most comprehensive formula for the method is: "The attitude of looking away from first things, principles, 'categories,' supposed necessities; and of looking towards last things, fruits, consequences, facts" (pp. 54-55). And as the attitude looked "away from" is the rationalistic, perhaps the chief aim of the lectures is to exemplify some typical differences resulting from taking one outlook or the other.

But pragmatism is also "used in a still wider sense, as meaning also a certain theory of truth" (p. 55); it is "a genetic theory of what is meant by truth" (p. 65). Truth means, as a matter of course, agreement, correspondence, of idea and fact (p. 198), but what do agreement, correspondence, mean? With rationalism they mean "a static, inert relation," which is so ultimate that of it nothing more can be said. With pragmatism they signify the guiding or leading power of ideas by which we "dip into the particulars of experience again," and if by its aid we set up the arrangements and connections among experienced objects which the idea intends, the idea is verified; it corresponds with the things it means to square with (pp. 205-206). The idea is true which works in leading us to what it purports (p. 80).² Or, "any idea that will carry us prosperously from any one part of experience to any other part, linking things satisfactorily, working securely, simplifying, saving labor, is

¹ William James, "Pragmatism, a New Name for Some Old Ways of Thinking." Popular Lectures on Philosophy. New York: Longmans, Green & Co. 1907. Pp. xiii + 309.

² Certain aspects of the doctrine are here purposely omitted, and will meet us later.

true for just so much, true in so far forth" (p. 58). This notion presupposes that ideas are essentially intentions (plans and methods), and that what they, as ideas, ultimately intend is *prospective*—certain changes in prior existing things. This contrasts again with rationalism, with its copy theory, where ideas, as ideas, are ineffective and impotent since they mean only to mirror a reality (p. 69) complete without them. Thus we are led to the third aspect of pragmatism. The alternative between rationalism and pragmatism "concerns the structure of the universe itself" (p. 258). "The essential contrast is that reality . . . for pragmatism is still in the making" (p. 257). And in a recent number of this JOURNAL³ he says: "I was primarily concerned in my lectures with contrasting the belief that the world is still in the process of making with the belief that there is an eternal edition of it ready-made and complete."

It will be following Mr. James's example, I think, if we here regard pragmatism as primarily a method, and treat the account of ideas and their truth and of reality somewhat incidentally so far as the discussion of them serves to exemplify or enforce the method. Regarding the attitude of orientation which looks to outcomes and consequences, one readily sees that it has, as Mr. James points out, points of contact with historic empiricism, nominalism, and utilitarianism. It insists that general notions shall "cash" in as particular objects and qualities in experience; that "principles" are ultimately subsumed under facts, rather than the reverse; that the empirical consequence rather than the *a priori* basis is the sanctioning and warranting factor. But all of these ideas are colored and transformed by the dominant influence of experimental science: the method of treating conceptions, theories, etc., as working hypotheses, as directors for certain experiments and experimental observations. Pragmatism as attitude represents what Mr. Peirce has happily termed the "laboratory habit of mind" extended into every area where inquiry may fruitfully be carried on. A scientist would, I think, wonder not so much at the method as at the lateness of philosophy's conversion to what has made modern science what it is. Nevertheless it is impossible to forecast the intellectual change that should proceed from carrying the method sincerely and unreservedly into all fields of inquiry. Leaving philosophy out of account, what a change would be wrought in the historical and social sciences—in the conceptions of politics and law and political economy! Mr. James does not claim too much when he says: "The center of gravity of philosophy must alter its place. The earth of things, long thrown into shadow by the glories of the upper ether,

³Vol. IV., p. 547.

must resume its rights. . . . It will be an alteration in the 'seat of authority' that reminds one almost of the Protestant Reformation" (p. 123).

I can imagine that many would not accept this method in philosophy for very diverse reasons, perhaps among the most potent of which is lack of faith in the power of the elements and processes of experience and life to guarantee their own security and prosperity; because, that is, of the feeling that the world of experience is so unstable, mistaken, and fragmentary that it must have an absolutely permanent, true, and complete ground. I can not imagine, however, that so much uncertainty and controversy, as actually exists, should arise about the content and import of the doctrine on the basis of the general formula. It is when the method is applied to special points that questions arise. Mr. James reminds us in his preface that the pragmatic movement has found expression "from so many points of view, that much unconcerted statement has resulted." And speaking of his lectures, he goes on to say: "I have sought to unify the picture as it presents itself to my own eyes, dealing in broad strokes." The "different points of view" here spoken of have concerned themselves with viewing pragmatically a number of different things. And it is, I think, Mr. James's effort to combine them as they stand which occasions misunderstanding among Mr. James's readers. Mr. James himself applied it, for example, in 1898 to philosophic *controversies* to indicate what they mean in terms of practical issues at stake. Before that, Mr. Peirce himself (in 1878) had applied the method to the proper way of conceiving and defining *objects*. Then it has been applied to *ideas* in order to find out what they mean in terms of what they intend, and what and how they must intend in order to be true. Again, it has been applied to *beliefs*, to what men actually accept, hold to, and affirm. Indeed, it lies in the nature of pragmatism that it should be applied as widely as possible; and to things as diverse as controversies, beliefs, truths, ideas, and objects. But yet the situations and problems *are* diverse; so much so that, while the meaning of each may be told on the basis of "last things," "fruits," "consequences," "facts," *it is quite certain that last things and facts will be very different in the diverse cases, and that very different types of meaning will stand out.* "Meaning" will itself *mean* something quite different in the case of "objects" from what it will in the case of "ideas," and for "ideas" something different than in the case of "truths." Now the explanation to which I have been led of the unsatisfactory condition of contemporary pragmatic discussion is that in composing these "different points of view" into a single pictorial whole,

the *distinct* type of consequence and hence of meaning of practical appropriate to each has not been sufficiently emphasized.

When we consider separately the subjects to which the pragmatic method has been applied, we find that Mr. James has provided the necessary formula for each—with his never failing instinct for the concrete. We take first the question of the significance of an *object*: the meaning which should properly be contained in its conception or definition. "To attain perfect clearness in our thoughts of an *object*, then, we need only consider what conceivable effects of a practical kind the *object* may involve—what sensations we are to expect from it and what reactions we must prepare" (pp. 46-47). Or, more shortly, as it is quoted from Ostwald, "All realities influence our practise, and that influence is their meaning for us" (p. 48). Here it will be noted that the start is from *objects* already empirically given or presented, existentially vouched for, and the question is as to their proper conception—what do *objects* mean. And the meaning is the effects *these given objects produce*. One might doubt the correctness of this theory, but I do not see how one could doubt its import, or could accuse it of subjectivism or idealism, since the object with its power to produce effects is assumed. Meaning is expressly distinguished from objects, not confused (as in idealism), and is said to consist in the practical reactions objects exact of us or impose upon us. When it is a question, then, of an object, "meaning" signifies *conceptual content or connotation*, and "*practical*" means *the future responses which an object requires of us or commits us to*.

But we may also start from a given idea, and ask what the *idea* means. Pragmatism will, of course, look to future consequences, but they will clearly be of a different sort when we start from an idea as idea, than when we start from an object. For what the idea as idea means, is precisely that an object is *not* given. The pragmatic procedure here is to set the idea "at work within the stream of experience. It appears less as a solution than as a program for more work, and particularly as an indication of the ways in which existing realities may be changed. Theories, thus, become instruments. . . . We don't lie back on them, we move forward, and, on occasion, make nature over again by their aid" (p. 53). In other words, an idea is a draft drawn upon existing things, an intention to act so as to arrange them in a certain way. From which it follows that if the draft is honored, if existences, following upon the actions rearrange or readjust themselves in the way the idea intends, the idea is true. When, then, it is a question of an idea, it is the idea *itself* which is practical (being an intent) and its *meaning* resides in the existences which, as changed, it intends. While the

meaning of an object is the changes it requires in our attitude,⁴ the meaning of an idea is the changes it *as* attitude effects in objects.

Then we have another formula, applicable not to objects or ideas as objects and ideas, but to *truths*—to things, that is, where the meaning of the object and of the idea is assumed to be already ascertained. It reads: "What difference would it practically make to any one if this notion rather than that notion *were true*? If no practical difference whatever can be traced, then the alternatives mean practically the same thing, and all dispute is idle" (p. 45). There can be "no difference in abstract truth that doesn't express itself in a difference in concrete fact, and in conduct consequent upon that fact, imposed on somebody" (p. 50).⁵ Now when we start with something which is already a truth (or taken to be truth), and ask for its meaning in terms of its consequences, it is implied that the conception, or conceptual significance, is already clear, and that the existences it refers to are already in hand. Meaning here, then, can be neither the connotative nor denotative reference of a term; they are covered by the two prior formulæ. Meaning here is *value*, importance. The practical factor is, then, the worth character of these consequences: they are good or bad; desirable or undesirable; or merely *null*, indifferent, in which latter case belief is idle, the controversy a vain and conventional, or verbal, one.

The term meaning and the term practical taken in isolation, and without explicit definition from their specific context and problem, are triply ambiguous. The meaning may be the conceptual connotation or definition of an object: it may be the denotative existential reference of an idea: it may be actual value or importance. So practical in the corresponding cases may mean attitudes and conduct exacted of us by objects; or the capacity and tendency of an idea to effect changes in prior existences; or the desirable and undesirable quality of certain ends. The general pragmatic attitude, none the less, is applied in all cases.

If the differing problems and the correlative diverse significations of the terms "meaning" and "practical" are borne in mind, not all will be converted to pragmatism, but the present uncertainty as to what pragmatism is, any way, and the present constant complaints on both sides of "misunderstanding," will, I think, be minimized. At all events, I have reached the conclusion that what the pragmatic

⁴Only those who are already lost in the idealistic confusion of existence and meaning will take this to mean that the object is those changes in our reactions.

⁵I assume that the reader is sufficiently familiar with Mr. James's book not to be misled by the test into thinking that Mr. James himself discriminates as I have done these three types of problems from one another. He does not; but, none the less, the three formulæ for the three situations are there.

movement just now wants is a clear and consistent bearing in mind of these different problems and of what is meant by practical in each. Accordingly the rest of this paper is an endeavor to elucidate from the standpoint of pragmatic method the importance of enforcing these distinctions.

First, as to the problems of philosophy when pragmatically approached, Mr. James says: "The whole function of philosophy ought to be to find out what definite difference it will make to you and me, at definite instants of our life, if this world formula or that world formula be true" (p. 50). Here the world formula is assumed as already given; it is there, defined and constituted, and the question is as to its value if believed. But from the second standpoint, that of idea as working hypotheses, the chief function of philosophy is not to find out what difference ready-made formulæ make, *if true*, but to arrive at and to clarify their *meaning as programs of behavior for modifying the existent world*. From this standpoint, the meaning of a world formula is practical and moral, not merely in the consequences which flow from accepting a certain conceptual content as true, but as to that content itself. And thus at the very outset we are compelled to face this question: Does Mr. James employ the pragmatic method to discover the *value* in terms of consequences in life of some formula which has its content, its *logical* meaning, already fixed; or does he employ it to criticize and revise and, ultimately, to *constitute* the proper intellectual meaning of that formula? If it is the first, there is danger that the pragmatic method will be employed only to vivify, if not validate, doctrines which in themselves are pieces of rationalistic metaphysics, not inherently pragmatic. If the last, there is danger that some readers will think the old notions are being confirmed when in truth they are being translated into new and inconsistent notions.

Consider the case of design. Mr. James begins with accepting a ready-made notion, to which he then applies the pragmatic criterion. The traditional notion is that of "a seeing force that runs things." This is rationalistically and retrospectively empty: its being there makes no difference. (This seems to overlook the fact that the past world may be just what it is in virtue of the difference which a blind force or seeing force has already made in it. A pragmatist as well as a rationalist may reply that it makes no difference retrospectively only because we leave out the most important retrospective difference.) But "returning with it into experience, we gain a more confiding outlook on the future. If not a blind force, but a seeing force, run things, we may reasonably expect better issues. *This vague confidence in the future is the sole pragmatic meaning at present discernible in the terms design and designer*" (p. 115, italics

mine). Now is this meaning intended to *replace* the meaning of a "seeing force which runs things"? Or is it intended to superadd a pragmatic value and validation to that concept of a seeing force? Or, does it mean that, irrespective of the existence of any such object, a *belief in it* has that value? Strict pragmatism would seem to require the first interpretation, but I do not think that is what Mr. James intends.

The same difficulties arise in the discussion of spiritualistic theism *versus* materialism. Compare the two following statements: "The notion of God . . . guarantees an ideal order that shall be permanently preserved" (p. 106). "Here, then, in these different emotional and practical appeals, in these adjustments of our attitudes of hope and expectation, and all the delicate consequences which their differences entail, *lie the real meanings of materialism and spiritualism*" (p. 107, italics mine). Does the latter method of determining the meaning of, say, a spiritual God afford the *substitute* for the conception of him as a "superhuman power" effecting the eternal preservation of something; does it, that is, define God, supply the content for our notion of God? Or, does it merely superadd a *value* to a meaning already fixed? And, if the latter, is it the object, God as defined, or the notion, or the belief (the acceptance of the notion) which effects these consequent values? In either of the latter alternatives, the good or valuable consequences can not clarify the *meaning* or conception of God; for, by the argument, they proceed from a prior definition of God. They can not prove, or render more probable, the existence of such a being, for, by the argument, these desirable consequences depend upon accepting such an existence; and not even pragmatism can prove an *existence* from desirable consequences which *themselves* exist only when and if that other existence is there. On the other hand, if the pragmatic method is not applied simply to tell the *value* of a belief or controversy, but to fix the *meaning of the terms* involved in the belief, resulting consequences would serve to constitute the *entire* meaning, intellectual as well as practical, of the terms; and hence the pragmatic method would simply *abolish* the meaning of an antecedent power which will perpetuate eternally some existence. For *that* consequence flows not from the belief or idea, but from the existence, the power. It is not pragmatic at all.

Accordingly, when Mr. James says: "Other than this *practical* significance, the words God, free will, design *have none*. Yet dark though they be in themselves, or intellectualistically taken, when we bear them on to life's thicket with us, the darkness then grows light about us" (p. 121, italics mine), what is meant? Is it meant that when we take the intellectualistic notion and employ it, it gets value

in the way of results, and hence then has some *value* of its own; or is it meant that the intellectual content itself must be determined in terms of the changes effected in the ordering of life's thicket? An explicit declaration on this point would settle, I think, not merely a point interesting in itself, but one essential to the determination of what is pragmatic method. For myself, I have no hesitation in saying that it seems unpragmatic for pragmatism to content itself with finding out the *value* of a conception whose own inherent intellectual significance pragmatism has not first determined by treating it not as a *truth*, but simply as a working hypothesis and method. In the particular case in question, moreover, it is difficult to see how the pragmatic method could possibly be applied to a notion of "eternal perpetuation," which, by its nature, can *never* be empirically verified, or cashed in *any* particular case.

This brings us to the question of truth. The problem here is also ambiguous in advance of definition. Does the problem of what is truth refer to discovering the "true meaning" of something; or to discovering what an idea has to effect, and how, in order to be true; or to discovering what the value of truth is when it is an existent and accomplished fact? (1) We may, of course, find the "true meaning" of a thing, as distinct from its incorrect interpretation, without that establishing the truth of the "true meaning"—as we may dispute about the "true meaning" of a classic passage concerning Centaurs, and yet the determination of its true sense does not establish the truth of the notion that there are Centaurs. Occasionally this "true meaning" seems to be what Mr. James has in mind, as when, after the passage upon design already quoted, he goes on: "But if cosmic confidence is right, not wrong, better, not worse, that [vague confidence in the future] is a most important meaning. That much at least of possible 'truth' the terms will then have in them" (p. 115). "Truth" here seems to mean that design has a genuine, not merely conventional or verbal, meaning: that something is at stake. And there are frequently points where "truth" seems to mean just meaning that is genuine as distinct from empty or verbal. (2) But the problem of meaning of truth may also refer to the meaning or value of truths that already exist as truths. We have them; they exist: now what do they mean? The answer is: "True ideas lead us into useful verbal and conceptual quarters as well as directly up to useful sensible termini. They lead to consistency, stability, and flowing human intercourse" (p. 215). This, referring to things already true, I do not suppose the most case-hardened rationalist would question; and even if he questions the pragmatic contention that these consequences define the meaning of truth, he should see that here it is not an account of what

it means for an idea to *become true*, but only of what it means *after* it has become true, truth as *fait accompli*. It is the meaning of truth as *fait accompli* which is here defined.

Bearing this in mind, I do not know why a mild tempered rationalist should object to the doctrine that truth is *valuable* not *per se*, but because, when given, it *leads* to desirable consequences. "The true thought is useful here because the home which is its object is useful. The practical value of true ideas is thus primarily derived from the practical importance of their objects to us" (p. 203). And many besides confirmed pragmatists, any utilitarian, for example, would be willing to say that our *duty* to pursue "truth" is conditioned upon its leading to objects which upon the whole are valuable. "The concrete benefits we gain are what we mean by calling the pursuit a duty" (p. 231, compare p. 76). (3) Difficulties have arisen chiefly because Mr. James is charged with converting simply the above proposition, and arguing that since true ideas are good, any idea if good in any way is true. Certainly transition from one of these conceptions to the other is facilitated by the fact that ideas are tested as to their validity by a *certain* goodness, viz., whether they are good *for* accomplishing what they intend, what they *claim* to be good for, that is, certain modifications in prior given existences. In this case, it is the *idea* which is practical, since it is essentially an intent and plan of altering prior existences in a specific situation, which is indicated to be unsatisfactory by the very fact that it needs or suggests a specific modification. Now we have the theory that ideas as ideas are always working hypotheses concerning attaining particular empirical results, and are tentative programs (or sketches of method) for attaining them. If we stick consistently to this notion of ideas, only *consequences which are actually produced by the working of the idea in cooperation with, or application to, prior realities are good consequences in the specific sense of good which is relevant to establishing the truth of an idea*. This is, at times, unequivocally recognized by Mr. James. (See, for example, the reference to *verification*, on p. 201; the acceptance of the idea that verification means the advent of the object intended, on p. 205.)

But at other times any good which flows from acceptance of a belief is treated as if it were an evidence, *in so far*, of the truth of the idea. This holds particularly when theological notions are under consideration. Light would be thrown upon how Mr. James conceives this matter by statements from him on such points as these: If ideas terminate in good consequences, but yet the goodness of the consequences, was no part of the intention of an idea, does the goodness have any verifying force? If the goodness of consequences

arises from the context of the idea in belief rather than from the idea itself, does it have any verifying force?⁶ If an idea leads to consequences which are good in the *one* respect only of fulfilling the intent of the idea (as when one drinks a liquid to test the idea that it is a poison), does the badness of the consequences in every other respect detract from the verifying force of these consequences?

Since Mr. James has referred to me as saying "truth is what gives satisfaction" (p. 234), I may remark (apart from the fact that I do not think I ever said that truth is what *gives* satisfaction) that I have never identified *any* satisfaction with the truth of an idea, save *that* satisfaction which arises when the idea as working hypothesis or tentative method is applied to prior existences in such a way as to fulfill what it intends.

My final impression (which I can not adequately prove) is that upon the whole Mr. James is most concerned to enforce, as against rationalism, two conclusions about the character of truths as *faits accomplis*: namely, that they are made, not *a priori*, or eternally in existence,⁷ and that their value or importance is not static, but dynamic and practical. The special question of *how* truths are made is not particularly relevant to this anti-rationalistic crusade, while it is the chief question of interest to many who are not rationalists. Because of this conflict of problems, what Mr. James says about the value of truth when accomplished is likely to be interpreted by some as a criterion for ideas as ideas; while, on the other hand, Mr. James himself is likely to pass lightly from the consequences that determine the worth of a belief to those which decide the worth of an idea. When Mr. James says the function of giving "satisfaction in marrying previous parts of experience with newer parts" is necessary in order to establish truth, the doctrine is unambiguous. The satisfactory character of consequences is itself measured and defined by the conditions which led up to it; the inherently satisfactory quality of results is not taken as validating antecedent intellectual operations. But when he says (not

⁶The idea of immortality or the traditional theistic idea of God, for example, may produce its good consequences, not in virtue of the idea as idea, but from the character of the person who entertains the belief; or it may be the idea of the *supreme value* of ideal considerations, rather than that of their temporal duration, which works.

⁷"Eternal truth" is one of the most ambiguous phrases that philosophers trip over. It may mean eternally in existence; or that a statement which is ever true is always true (if it is true a fly is buzzing, it is eternally true that just now a fly buzzed); or it may mean that some truths, *in so far as wholly conceptual*, are irrelevant to any particular time determination, since they are non-existential in import—*e. g.*, the truths of geometry dialectically taken—that is, without asking whether any particular existence exemplifies them.

of his own position, but of an opponent's⁸) of the idea of an absolute, "so far as it affords such comfort it surely is not sterile, it has that amount of value; it performs a concrete function. As a good pragmatist I myself ought to call the absolute true *in so far forth* then; and I unhesitatingly now do so" (p. 73), the doctrine seems to be as unambiguous in the other direction: that *any* good, consequent upon acceptance of a belief, is, in so far forth,⁹ a warrant of truth. In such passages as the following (which are of the common type) the two notions seem blended together: "Ideas become true just in so far as they help us to get into satisfactory relations with other parts of our experience" (p. 58); and, again, on the same page: "Any idea that will carry us *prosperously* from any one part of our experience to any other part, linking things *satisfactorily*, working securely, simplifying, saving labor, is true for just so much" (italics mine). An explicit statement as to whether the carrying function, the linking of things, is satisfactory and prosperous and hence true in so far as it executes the intent of an idea, or whether the satisfaction and prosperity reside in the material consequences on their own account and in that aspect make the idea true, would, I am sure, locate the point at issue and economize and fructify future discussion. At present pragmatism is accepted by those whose own notions are thoroughly rationalistic in make-up as a means of refurbishing, galvanizing, and justifying those very no-

⁸ Such statements, it ought in fairness to be said, generally come when Mr. James is speaking of a doctrine which he does not himself believe, and arise, I think, in that fairness and frankness of Mr. James, so unusual in philosophers, which cause him to lean over backwards—unpragmatically, it seems to me. As to the claim of his own doctrine, he consistently sticks to his statement: "Pent in, as the pragmatist, more than any one, sees himself to be, between the whole body of banded truths squeezed from the past and the coercions of the world of sense about him, who, so well as he, feels the immense pressure of objective control under which our minds perform their operations? If any one imagines that this law is lax, let him keep its commandments one day, says Emerson" (p. 233).

⁹ Of course, Mr. James holds that this "in so far" goes a very small way. See pp. 77-79. But even the slightest concession is, I think, non-pragmatic unless the satisfaction is relevant to the idea as intent. Now the satisfaction in question comes not from the *idea as idea*, but from its acceptance *as true*. Can a satisfaction dependent on an assumption that an idea is already true be relevant to testing the truth of an idea? And can an idea, like that of the *absolute*, which, if true, "absolutely" precludes any appeal to consequences as test of truth, be confirmed by use of the pragmatic test without sheer self-contradiction? In other words, we have a confusion of the test of an idea as idea, with that of the value of a belief as belief. On the other hand, it is quite possible that all Mr. James intends by truth here is true (*i. e.*, genuine) meaning at stake in the issue—true as distinct, not from false, but from meaningless or verbal.

tions. It is rejected by non-rationalists (empiricists and naturalistic idealists) because it seems to them identified with the notion that pragmatism holds that the desirability of certain beliefs overrides the question of the meaning of the ideas involved in them and the existence of objects denoted by them. Others (like myself), who believe thoroughly in pragmatism as a method of orientation as defined by Mr. James, and who would apply the method to the determination of the meaning of objects, the intent and worth of ideas as ideas, and to the human and moral value of beliefs, when these various problems are carefully distinguished from one another, do not know whether they are pragmatists or not, because they are not sure whether the "practical," in the sense of desirable facts which define the worth of a belief, is confused with the practical as an attitude imposed by objects, and with the practical as a power and function of ideas to effect changes in prior existences. Hence the importance of knowing what pragmatism means by practical. And since Mr. James first introduced the term into print, and since he is chiefly responsible for its currency, he can speak with an authority possessed by no one else.

It would do Mr. James an injustice, however, to stop here. His real doctrine, I think, is that a belief is true when it satisfies *both* personal needs *and* the requirements of objective things. Speaking of pragmatism, he says, "Her only test of probable truth is what works best in the way of *leading us*, what fits every part of life best and *combines with the collectivity of experience's demands*, nothing being omitted" (p. 80, italics mine). And again, "That new idea is truest which performs most felicitously its function of satisfying *our double urgency*" (p. 64). It does not appear certain from the context that this "double urgency" is that of the personal and the objective demands, respectively, but it is probable (see, also, p. 217, where "consistency with previous truth and novel fact" is said to be "always the most imperious claimant"). On this basis, the "in so far forth" of the truth of the absolute because of the comfort it supplies, means that *one* of the two conditions which need to be satisfied has been met, so that if the idea of the absolute met the other one also, it would be quite true. I have no doubt this is Mr. James's meaning, and it sufficiently safeguards him from charges that pragmatism means that anything that is agreeable is true. At the same time, I do not think, in logical strictness, that satisfying one of two tests, when satisfaction of both is required, can be said to constitute a belief true even "in so far forth."

At all events this raises a question not touched so far: the place of the personal in the determination of truth. Mr. James, for example, emphasizes the doctrine suggested in the following words:

"We say this theory solves it [the problem] more satisfactorily than that theory; but that means more satisfactorily *to ourselves*, and individuals will emphasize their points of satisfaction differently" (p. 61, *italics mine*). This opens out into a question which, in its larger aspects, the place of the personal factor in the constitution of knowledge systems and of reality, I can not here enter upon, save to say that a *synthetic pragmatism* such as Mr. James has ventured upon will take a very different form according as the point of view of what he calls the "Chicago School" or that of humanism is taken as a basis for interpreting the nature of the "personal." According to the latter view, the personal appears to be ultimate and unanalyzable, the metaphysically real. Associations with idealism, moreover, give it an idealistic turn, a translation, in effect, of monistic intellectualistic idealism into pluralistic, voluntaristic idealism. But, according to the former, the personal is not ultimate, but is to be analyzed and defined biologically on its genetic side, ethically on its prospective and functioning side.

There is, however, one phase of the teaching illustrated by the quotation which is directly relevant here. Because Mr. James recognizes that the personal element enters in passing upon whether a problem has or has not been satisfactorily solved, he is charged with extreme subjectivism, of encouraging the element of personal preference to run rough-shod over all objective controls. Now the question raised in the quotation is primarily one of fact, not of doctrine. Is or is not a personal factor found in truth evaluations? If it is, pragmatism is not responsible for introducing it. If it is not, it ought to be possible to refute pragmatism by appeal to empirical fact, rather than by reviling it for subjectivism. Now it is an old story that philosophers, in common with theologians and social theorists, are as sure that personal habits and interests shape their opponents' doctrines as they are that their own beliefs are "absolutely" universal and objective in quality. Hence arises that dishonesty, that insincerity characteristic of philosophic discussion. As Mr. James says (p. 8), "The most potential of all our premises is never mentioned." Now the moment the complicity of the personal factor in our philosophic valuations is recognized, is recognized fully, frankly and generally, that moment a new era in philosophy will begin. We shall have to discover the personal factors that now unconsciously influence us, and begin to accept a new and moral responsibility for them, for judging and testing them by their consequences. So long as we ignore this factor, its deeds will be largely evil, not because it is evil, but because, flourishing in the dark, it is without responsibility and without check. The only way to control it is by recognizing it. And while I would

not prophesy of pragmatism's future, I would say that this element which is now so generally condemned as intellectual dishonesty (perhaps because of an uneasy, instinctive recognition of the searching of hearts its acceptance would involve) will in the future be accounted unto philosophy for righteousness' sake.

So much in general. In particular cases, it is possible that Mr. James's language occasionally leaves the impression that the fact of the inevitable involution of the personal factor in every belief gives some *special* sanction to some *special* belief. Mr. James says that his essay on the *right* to believe was unluckily entitled the *will* to believe (p. 258). Well, even the term "right" is unfortunate, if the personal or belief factor is inevitable—unfortunate because it seems to indicate a privilege which might be exercised in special cases, in religion, for example, though not in science; or, because it suggests to some minds that the fact of the personal complicity involved in belief is a warrant for this or that special personal attitude, instead of being a warning to locate and define it, and to accept moral responsibility for it. If we mean by "will," not something deliberate and consciously intentional (much less, something insincere), but an active personal participation, then belief *as will* rather than either the right or the will to believe would seem to phrase the matter.

I have not attempted to review Mr. James's book, but rather the present status of the pragmatic movement as expressed in the book; and have selected only those points which seem to bear directly upon matters of contemporary controversy. Even as an account of this limited field, the foregoing pages do an injustice to Mr. James save as it is recognized that his lectures were "popular lectures," as the title-page advises us. We can not expect the kind of clearness and explicitness in such lectures which would satisfy the professional and technical interests which have inspired this review. Moreover, it is inevitable that the attempt to compose different points of view, hitherto uncoordinated, into a single whole should give rise to problems foreign to any one factor of the synthesis, left to itself. The need and possibility of the discrimination of various elements in the pragmatic meaning of "practical," attempted in this review, would hardly have been recognized by me were it not for by-products of perplexity and confusion which Mr. James's combination has effected. Mr. James has given so many evidences of the sincerity of his intellectual aims, that I trust to his pardon for the injustice which the character of my review may have done *him*, in view of whatever service it may render in clarifying the problem to which he is devoted.

As for the book itself, it is in any case beyond a critic's praise

or blame. It is more likely to take place as a philosophic classic than any other writing of our day. A critic who should attempt to appraise it, would probably give one more illustration of the sterility of criticism compared with the productiveness of creative genius. Even those who dislike pragmatism can hardly fail to find much of profit in the exhibition of Mr. James's instinct for concrete facts and the breadth of his sympathies, and his illuminating insights. Unreserved frankness, lucid imagination, varied contacts with life digested into summary and trenchant conclusions, keen perceptions of human nature in the concrete, a constant sense of the subordination of philosophy to life, capacity to put things into an English which projects ideas as if bodily into space till they are solid things to walk around and survey from different sides—these things are not so common in philosophy that they may not smell sweet even by the name of pragmatism.

As for the thing pragmatism, moreover, Mr. James has performed so uniquely the composing of different elements into a single pictorial or artistic whole, that it is probable that progress in the immediate future will come from a more analytic clearing up and development of these independent elements. It will then be possible to pass upon their differential traits, and the possibility of their consistent, logical combination. After a period of pools and mergers, the tendency is to return to the advantages of individual effort and responsibility. Possibly "pragmatism" as a holding company for allied, yet separate interests and problems, might be dissolved and revert to its original constituents.

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DISCUSSION

THE PRAGMATIC YAH OF MR. SCHILLER

THE quarrel of pragmatism with idealism appears to center in a denial of the absolute. By "absolute" the pragmatist apparently intends not merely the all-comprehensive absolute, but all aspects of human experience which are ultimately inevitable or insuperable. In contrast with an absolute view of either the form or content of human experience, the pragmatist advances the principle of the "plasticity" or the "malleability" of all the items of experience.

By way of approach to a consideration of the pragmatic resolution of the apparently objective into that which is non-objective, we may note that pragmatism, despite its repudiation of the objective

as such, of the absolute in general, admits an objective and absolute aspect of contemporary experience. For Professor James¹ differentiates reality into three parts; and of these, "the *second* part of reality, as something that our beliefs must also obediently take account of, is the *relations* that obtain between our sensations or between their copies. . . ." Some of these relations are "accidental," but others "are fixed and essential because they are grounded on the inner nature of their terms." Whatever may have been the history of these "fixed and essential" relations, it seems clear from Professor James's discussion that for contemporary experience they present an aspect which is inevitable and generally valid, and which, therefore, is absolute. "Inner relations," he affirms (p. 245), "are 'eternal,' are perceived [*i. e.*, are immediately perceived] whenever their sensible terms are compared; and of them our thought—mathematical and logical thought, so-called—must eternally take account." This affirmation clearly implies that mathematics and logic are not through and through pragmatic, but have and manifest an objective and absolute aspect. This being so, pragmatic construction must be limited to an arrangement or rearrangement of objective data. And Professor James admits that "we receive . . . the block of marble, but we carve the statue ourselves, . . . we shuffle our perceptions of intrinsic relation and arrange them . . . freely."

We may now also note that acknowledgment of the "fact" of "intrinsic" and "eternal" relations, "grounded on the inner nature of their terms," constrains the further admission that the so-called "that" aspect of cognition is vastly more than a bare "that." By virtue of its essential relations it comes to the cognizing subject with a certain context which must be taken account of. In short, the "that," the immediate fact or datum, is not purely immediate, but rather is mediated by its relations. These relations, accordingly, have a determining influence upon human thought about them. Neither "what" nor "that" is purely subjective. Whatever the real material of experience may be in itself, it has for contemporary experience an objective aspect.

Thoroughgoing pragmatism, however, in so far as it does not espouse an unreflective immediate empiricism, will endeavor to reduce this objective aspect still further. And a consistent pragmatism must reduce the resisting aspect of contemporary experience to terms of previous construction by conscious agents. Mr. Schiller resolutely attacks this problem. In order to obtain its solution he follows two lines of argument, which may be succinctly stated as propositions. The two fundamental propositions the validity of which he con-

¹ "Pragmatism," p. 244.

fidently undertakes to establish, are: (1) The apparently fundamental forms of human thinking are products of constructive processes and had their origin as postulates.—Passing by this proposition, I desire to examine briefly some of the suicidal consequences of the second proposition, which states that: (2) Apart from all construction or making, truth and reality reduce to an indeterminate potentiality or *ὑλη*.

Mr. Schiller is led to revive the Aristotelian concept *ὑλη* because convinced that neither the idealist nor the realist adequately defines the nature of the "resisting factor" in experience. Neither the idealistic phrase "about the self positing its other" nor that of an "objective or material world" is, in his opinion, "free from objection." Such traditional phrases mislead, he declares, because they imply "just what we have seen to be untrue, viz., that there is an objective world given independently of us and constraining us to recognize it."² In view of the inadequacy of alternative historical explanations of the nature of the objective aspect of experience, Mr. Schiller advances his own solution: "The truest account, then," he declares, "it would seem possible to give of this resisting factor in our experience is to revive, for the purpose of its description, the old Aristotelian conception of 'matter' as *ὑλη δεκτικὴ τοῦ εἶδους*, as potentiality of whatever form we succeed in imposing on it. It may be regarded as the raw material of the cosmos. . . ." The postulate of such "raw material" follows from the alleged fact "that since any determinate character in a 'fact' may be conceived, and must be assumed, to have been derived, this original datum is reduced for us in principle to a mere potentiality, an indeterminate possibility of what is subsequently made of it."³

Thus in the face of that which for contemporary experience is objective and absolute the pragmatist seeks escape through recourse to the concept *ὑλη*. This concept, however, may be shown to be untenable.

The *ὑλη* is advanced primarily as a limitative concept. The pragmatic method postulates "an initial basis of fact as the condition of its getting to work at all." But any particular "fact" "can always be conceived as having been 'made' by a previous cognitive operation."⁴ If every specific item of truth and reality has been constructed by some agent prior to its appearance as "fact," then, clearly, if the chain of constructions is followed back through past cons, there is finally reached a mere potentiality of the first fact as basis of the initial construction of truth and reality. This *ὑλη*

¹ "Axioms as Postulates," p. 59.

² "Studies in Humanism," p. 434.

³ "Studies," p. 428.

as mere potentiality would be indeterminate, and as such merely a "limit" of rational explanation. This briefly is the pragmatic account of $\bar{\omega}\eta$.

This use of the concept conflicts with another tenet of pragmatism, or rather of humanism. Humanism, however, may be regarded as an amplified form of pragmatism. For Mr. Schiller has assured us that "humanism willingly assents . . . that reality is experience." What, then, is the relation of $\bar{\omega}\eta$ as a limitative concept to the proposition "Reality is experience"? The $\bar{\omega}\eta$ as such obviously is not experience nor is it experienced;⁵ *ex hypothesi* it serves simply as the basis of the initial act of the cognitive construction of truth. A question which the pragmatist cheerfully thrusts to one side arises in this connection, viz., What reality has the $\bar{\omega}\eta$ apart from the initial act of construction? Even potentiality must in some sort have reality. But $\bar{\omega}\eta$ by definition seems as much cut off from that reality which is constituted by experience as the Kantian *ding an sich*. The pragmatist seems constrained to admit that there never has been an *indeterminate* $\bar{\omega}\eta$. If there never has been an indeterminate $\bar{\omega}\eta$, if the notion is self-contradictory, then the idealistic contention that form and matter can not be disrupted stands unimpaired. But this very admission involves a further recognition of an objective aspect of all experience. For form and matter being inseparable, all material of human experience comes to experience in definite contextual relations, and, accordingly, determines the character of human thought about it. If, however, the reality of a comparatively indeterminate $\bar{\omega}\eta$ be referred to some non-human construction, there is then no $\bar{\omega}\eta$ as such, but still a determinate content of experience. The concept $\bar{\omega}\eta$ applied as a limitative concept apparently leads out into an infinite regress, for at whatever level pause be made the pure $\bar{\omega}\eta$ is still to seek. An ever receding hypothetical basis of determinate experience which always remains *beyond* experience, can not be harmonized with the proposition "reality is experience." Since sheer potentiality possessed of no characteristics is essentially unreal, the inseparable formal and material aspects of experience would seem each to have a psychical basis. Thus the admission that reality is experience implies that the so-called $\bar{\omega}\eta$ has ultimately a psychical source.

The $\bar{\omega}\eta$ as a limitative concept Mr. Schiller urges should be confined to an epistemological application. The above discussion will already have given indication that if it be admitted that reality is experience, there can be no exclusively epistemological application of any concept. The epistemological uses of a concept have, by virtue

⁵ Cf. James, *op. cit.*, p. 248.

of this admission, ontological implications, and *vice versa*. This intimate interrelationship of the two philosophic disciplines explains the fact that the discussion of the epistemological bearings of $\mathfrak{A}\eta$ by the pragmatist leads to a development also of its ontological implications. Mr. Schiller, it is true, remarks tentatively that metaphysics may for pragmatism be *ultra vires*, and that "it seems quite feasible to conceive the making as *merely subjective*, as referring only to our *knowledge of reality*, without affecting its actual existence . . ." and also that "it may be denied that we 'make' reality metaphysically, though not that we 'make' it epistemologically." But to avoid a crass dualism implied by a doctrine of distinction between the epistemological and metaphysical making of truth and reality the pragmatist must identify the two processes. And this he attempts to do. Thus Mr. Schiller affirms⁶ that "the notion of a plastic, growing, incomplete reality"—a notion which he claims to have established as valid—"will permit us to conceive a 'making of reality' as really cosmic." That which it is thus permissible to *conceive* is soon given a metaphysical status, for we read (p. 434): "When the doctrine of the making of reality out of a relatively indeterminate material is construed metaphysically . . . it seems to assert the formation of the real out of a completely indeterminate chaos, of which nothing can be said save that it was capable of developing the determinations it *has* developed under the operations which *were* performed upon it."

Thus becomes manifest the inevitable tendency—if not necessity—of thought to develop the ontological implications of its epistemological concepts. How an indeterminate $\mathfrak{A}\eta$, whose synonym is chaos, could ever become the basis of determinate experience pragmatism fails to indicate. Alternative theories which define being as fundamentally spiritual are more harmonious with the theory that reality is experience. The burden of proof, therefore, would seem to rest upon the pragmatist and not upon the idealist when the former postulates as primal reality an indeterminate $\mathfrak{A}\eta$. If, then, he urge that $\mathfrak{A}\eta$ is indeterminate, but not indeterminable, may not the question be raised, by virtue of what characteristics $\mathfrak{A}\eta$ is capable of determination? But a $\mathfrak{A}\eta$ of definite characteristics is not $\mathfrak{A}\eta$ as such, it is *not* indeterminate, so the primal $\mathfrak{A}\eta$ is still to seek. Indeed, an indeterminate but determinable $\mathfrak{A}\eta$ is obviously a contradiction in terms.

The concept $\mathfrak{A}\eta$ seems capable of intelligible use in one sense only, viz., that any specific determinate item of experience is potentially another item which as yet is still unrealized. That it may become such other item is conditioned upon its possession of certain

⁶ "Studies," p. 427.

definite characteristics. No indeterminate item could *be* at all, and so *a fortiori* could not become the basis of experience. If this be so, then the concept $\bar{\omega}\lambda\eta$ simply constitutes a rather clumsy device for conveying the doctrine that what now *is* as truth and reality has undergone a previous development.

In spite of pragmatic contentions to the contrary, we must, therefore, not merely acknowledge a *system* of things constituted by the inner and essential relations of the particular items of experience—a system which for contemporary thought is objective—but also admit that the attempt to disrupt any item or aspect of experience into a form imposed by a cognitive agent, and a primal indeterminate matter or $\bar{\omega}\lambda\eta$, is futile. So long as we assent that reality is experience, for just so long must we further assent that no aspect of experience—actual or possible—contains or reveals a bare $\bar{\omega}\lambda\eta$, a sheer potentiality. For within experience form and content imply one another. To admit this is to admit that in some sort the matter of experience has a psychical basis. There can be no non-psychical $\bar{\omega}\lambda\eta$. A psychical $\bar{\omega}\lambda\eta$, a specific aspect of which may be rearranged by an individual cognizer, is well within the bounds of a system of idealistic concepts. The pragmatic explanation of the resisting factor in experience as an alternative to idealism and realism would seem, therefore, unsuccessful in its mission. So far as consistent meaning is attached to the concept $\bar{\omega}\lambda\eta$, it turns out to be the crass matter of the dualist. In so far as an intelligible interpretation of the doctrine it is intended to convey is given, it proves to be idealistic in purport.

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REVIEWS AND ABSTRACTS OF LITERATURE

Studies in German Romanticism. Part I.: *Repetition of a Word as a Means of Suspense in the Drama under the Influence of Romanticism.*

An inquiry into the structural foundations of dramatic suspense.

MARTIN SCHÜTZE. Chicago: University of Chicago Press. 1907. Pp. 58.

This is "the first in a series of five chapters forming the historical and philosophical groundwork for an essay upon the 'Theory of Reality of Modern Romanticism.'" The main line of the argument presented is as follows:

Repetition in some kind is essential to all art, amplifying and intensifying the main idea by presenting it in a variety of relations. Modernity, development in all arts, romanticism—the terms are apparently interchangeable for Dr. Schütze—emphasize variety, not by weakening the repetitive bond of unity, but by making it less obvious. In romantic art

our imagination is stimulated by suggestion to discover for itself the underlying idea which classic art frankly reveals. The lights from time to time are turned on only long enough to set us guessing; certainty is only reached—if at all—at the final curtain. Our state of mind during the performance is eminently one of suspense.

Of all literary forms, the drama is most qualified to provoke suspense. Indeed, Dr. Schütze goes so far as to make the questionable statement that "the dramatic form is entirely dependent upon suspense." And dramatic suspense is aroused, as already implied, by successive intimations, whether of *dénouement* or of fundamental idea or of purpose, sufficient to excite curiosity, but not to allay it. Among devices for such intimation characteristic of the romantic drama is the repetition of single words or brief phrases. Recurring significantly at dramatic crises, such keywords become, as it were, coordinates plotting the dramatic curve, which we are thus enabled to follow with increasing, but still partial, understanding.

The central interest of a drama, the progressive realization of which evokes suspense, has a double aspect, according as we test it (1) by its truth to life, and (2) by its human significance. In other words, a drama must be consistent from the standpoint of causality, both efficient and final. Efficient causes, the moving forces at work, may be either external or psychological.

Where dramatic interest lies wholly in plot, suspense may be heightened by the repetition of words representing, more or less symbolically, forces driving to the delayed *dénouement*; and such intensification may range from a mere teasing of curiosity to a harrowing suggestion of irremediable fate. For instance, in Lessing's "*Minna von Barnhelm*" and in Hebbel's "*Gyges und sein Ring*," the word, or rather the object, "*Ring*," is emphasized by constant repetition. "It serves as a bond connecting different phases in the progress of the story. In Lessing's play its function ends there; in Hebbel's it serves the further purpose of giving the awful authority of fate to the dramatic events and passions." In fact, the development of nineteenth century German drama has largely turned on the deepening and refining of such implication of "fate" through the repetition of words symbolic in sense, and often also in sound. Symbolism is more commonly attained by direct association, as in Gyges's "*Ring*"; but fate symbolism by analogy appears, as in Grillparzer's "*Des Meeres und der Liebe Wellen*," where constant repetition of "*Meer*" and "*Wellen*" emphasizes the similarity between Hero's elemental passion battling futilely against conventions, and the force of the sea waves shattering against her tower.

Fate within personality, as well as outside it, is suggestible by such verbal repetitions. And "since the rise of romanticism the psychological drama has been the dominant form of the drama," emphasizing character, personality, and using actions, events—often symbolically conceived—for the mere purpose of motivation.

Used slightly by Lessing in "*Emilia Galotti*," repetition serves constantly for psychological motivation with Kleist. His dramas are articu-

lated by keywords revealing the master-passions by which the characters are moved. Hebbel, Grillparzer, Otto Ludwig, Wagner use the same device with greater or less subtlety. So, among contemporaries, Hauptmann, and especially Sudermann in the effective repetition of "*Liebe*" in "*Johannes*." So, outside Germany, Ibsen; in whose later works especially, as "*John Gabriel Borkman*," "a study of his dialogue practically coincides with a study of his keywords." Maeterlinck has a new and unique form of repetition for psychological motivation: "it is the reiteration of words and phrases by those of his characters representing simple folk and children. This repetition expresses a *gaucherie*, a fate-ridden helplessness and resignation, such as are found among the poor and lowly, whom the march of history has passed by."

Repetition of a word, again, may suggest the practical purpose (*tendenz*), or final cause, of a drama. No serious drama is without such a purpose, without ethical significance—although it may well be that the so-called "problem play" is often overweighted by its "moral." Schiller, in "*Wilhelm Tell*," preaching national unity, repeats over and over the words "*ein*" and "*einig*"; Kleist, in "*Prinz von Homburg*," opposing the ideal of law to the individualistic license of his generation, similarly emphasizes the word "*Gesetz*." So Hebbel in "*Agnes Bernauer*"; so Grillparzer in "*Libussa*" and in "*Medea*."

Finally, repetition is capable of creating an "all-pervading emotional atmosphere, *Stimmung*, which may at times, as in Wagner's '*Tristan und Isolde*,' grow to an almost mesmeric power." Unaided by music, the "romantic" dramatist set out to produce a similar obsession over the minds of his audience. "And one of his principal means of imposing, intensifying, driving home this obsession was the tireless, recurrent keyword." "It is generally supposed," concludes Dr. Schütze, "that romanticism, being essentially lyrical, contributed nothing to the development of the drama. The main result of this study may be interpreted as an addition to our understanding of the very essential dramatic services of romanticism."

Apparently, we are to understand, then, that among "the very essential services of romanticism" to dramatic art is the "contribution" of "repetition of a word as a means of suspense." In spite of Dr. Schütze's technical terminology, at times formidable, his terms are too often vague. Does he mean by "romanticism" the mood recurrent in all periods of art, or the "romanticism" *κατ' ἐξοχήν* of the late eighteenth and early nineteenth centuries? If the latter, as his whole argument would seem to imply, then his "main result" does not follow. The device of "repetition" for "suspense" can hardly be called a "contribution" to "the development of the drama," by modern "romanticism," since the device was in full use long before. In fact, it is virtually incidental to the drama in all ages, in so-called classic drama as well as in romantic drama. Space permits here only a few scattered examples.

In the "*Agamemnon*" of Æschylus, the word *φρυκτός* (beacon) is repeated over and over in constantly enriched associations until it seems at last to symbolize the returned king himself, "bringing," as the Herald

says, "a light in darkness" (l. 523). In the "Antigone" of Sophocles, the word *κέρδος* (gain), repeated at three critical junctures, effectively reveals the suspicion by which Kreon's mind is obsessed. First he charges the chorus with betraying him for *gain* (l. 221); then the Watchman (l. 326); then Tiresias (l. 1047). This suspiciousness is largely the cause of the tyrant's undoing, and so motivates the entire action. In the Sanscrit "Sakuntala," the "ring of recognition" is quite as recurrent and fateful a symbol as Gyges's "*Ring*" in Hebbel's play. Calderon certainly "conveys a sense of an awful, fateful power, a magic potency" by repetitive insistence on the *dagger* in "El Mayor Monstruo los Celos," on the *cross* in "La Devoción de la Cruz," on the words "*salud*" and "*honor*" in "El Médico de su Honra." In the Elizabethan drama, to take only a brilliant example, the word "handkerchief" in Othello is repeated over twenty times, at once articulating the plot and motivating Othello himself (cf. especially III., iii., 305-7; III., iv., 51-101; IV., i., 10-44). It is a symbol of chastity—

To lose't or give't away were such perdition
As nothing else could match. . . . (III., iv., 66-7.)

for

. . . it was dy'd in mummy which the skilful
Conserv'd of maidens' hearts. (*Ib.*, 74-5.)

Of course, Othello does not intend this literally, but the suggestion carries none the less. It is made similarly to suggest "fate"—Desdemona exclaims in her perplexity:

Sure, there's some wonder in this handkerchief;
I am most unhappy in the loss of it. (*Ib.*, 101-2.)

And Othello:

O, it comes o'er my memory
As doth the raven o'er the infected house,
Boding to all — he had my handkerchief. (IV., i., 20-3.)

Further psychological motivation is effected by the repetition of "thought" and "think" when Iago first instils his poisonous doubt (III., iii., 96-106); of "honest" in the same passage applied to Cassio, and ironically to Iago throughout the play; of "prove" and "proof," illustrating at once Othello's insane jealousy and his abiding, but perverted, sense of justice (III., iii., 190-1, 195, 359-60, 364-5, 386, 430, 441). Instances might be multiplied, as again Emilia's bewildered reiteration of "husband," as Iago's villainy dawns upon her, until Othello finally exclaims impatiently:

What needs this iterance, woman? I say thy husband. . . .
I say thy husband; dost understand the word?
My friend, thy husband, honest, honest Iago. (V., ii., 150, 152-3.)

But enough has been said to prove such repetition to be no "contribution" from "Modern Romanticism."

The fact is, Dr. Schütze has a philosophic mind; he craves system, finality, universality; he is impatient of reservations and qualifications.

Some of his *obiter dicta*, no less than his main conclusion, reveal this temper. "Romantic" dramatists use symbols predominantly to convey the sense of "fate"; wherefore, he concludes, "only what is fraught with fate, and as far as it is so, is symbolic." And he adds in a foot-note: "The only fundamental distinction between 'symbol' and 'allegory' compatible with historical usage seems to me this, that a symbol appears vested with the authority of fate. From the 'storm-and-stress' movement until the romanticism of the present day, usage has never wavered in this respect." But what of Una's Lamb—are we to regard the "line" by which Una "lad" it as the bond of *fate*? From the Lamb's standpoint, undoubtedly.

Once more, the following illustrates Dr. Schütze's extreme categoricalism. "The pure lyric knows no suspense, because it utters a mode of feeling without regard to origin and issue; when suspense enters into a lyrical theme, it produces a romance; when it becomes a prominent part of the poetic effect, a ballad results." Just before, he has said that "under the head of suspense comes whatever *arouses*, *intensifies*, and *amplifies* one's interest in the progress of the drama." Suppose we substitute "lyric" for "drama," and test a familiar lyric. In Tennyson's "Break, Break, Break," is not suspense *aroused* by the vague intimation of disastrous thoughts in the first stanza, *intensified* by the passionate felicitation of "the fisherman's boy" and "the sailor lad" in the second, *amplified* by the suggestion of the "vanish'd hand" and the stilled "voice" in the third? And, incidentally, is not the suspense augmented by verbal repetition itself? As for the second part of the *dictum* quoted, it is—or is for the present reviewer—simply cryptic. If Dr. Schütze simply means that there is more "suspense" in a typical ballad than in a typical romance, we have at least a clear proposition, though one perhaps not quite self-evident. But he seems to say more than this; he seems to imply that romances and ballads are evolved from "lyrical themes" by progressive increments of "suspense" . . . *mais on ne s'entend pas ici!*

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The Religious Function of Comedy. J. D. LOGAN. Toronto: William Briggs. 1907. Pp. 18.

A distinctly novel attempt is made in this essay to show that genuine comedy makes its appeal to the religious imagination and, by overcoming our usual sense of the congruous, assists to an understanding of what must be considered the more baffling aspect of the problem of evil. The philosophical significance of comedy is exhibited in a unique and remarkably able manner. In the aid of his exposition the author adduces evidence from Aristotelian doctrine and dramatic history. His first endeavor is to combat the usual disposition to regard tragedy as of superior dignity and greater spiritual consequence. The traditional contrast between tragedy as "grave and great" and comedy as "light and gay" is founded upon a misunderstanding of Aristotle's terminology and a misapprehension of the real nature of comedy. We have been accustomed

to the view that Aristotle regarded comedy as a comparatively low form of literature. By a careful analysis of the terms employed by Aristotle the author shows that when tragedy and comedy are contrasted to the disadvantage of the latter, it is the old Attic comedy to which reference is made. On the other hand, when Aristotle declares that poetry is more significant than history he gives reference to the Middle Comedy—sufficient indication that comedy as such does not suffer under his condemnation.

Comedy equally with tragedy is an idealized representation of the significant portions of human experience. Comedy differs from tragedy in its point of view and in the nature of its appeal. The dominating mood of tragedy is that of finality; its appeal is to the emotions. The appeal of comedy is to the imagination; its point of view is given by its persistent recognition of contingency. From a genuine appreciation of comedy we gain not merely a view of the life and character presented, but a shadowing of the permanent reality beyond this life and character. The true comic insight is such as is able to grasp a situation in its totality, to regard events, human acts and feelings in their relation to a fundamental truth, and so to bring out the incongruities of human life and human character.

Because of its necessary reference to a reality beyond the given, comedy is metaphysical or religious. Chance, the accidental, are characterized by their incongruity with the known laws of the universe. As the perception of the incongruity of the events on the comic stage with the fundamental reality gives occasion for laughter, so could we but see with the eye of omniscience the fundamental reality with which chance and the accidental are incongruous, we should find "in circumstance and fate, in virtue and folly, and even in our own defeat and death, room for the pure laughter of the spirit."

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JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. January, 1908. *The Pragmatist Account of Truth and its Misunderstandings* (pp. 1-17): WILLIAM JAMES.—Critics of pragmatism have made the following fallacious objections. Pragmatism is (1) a reediting of positivism; (2) primarily an appeal to action; (3) precludes right to believe in ejective realities; (4) precludes realism in epistemology; (5) what pragmatists say is inconsistent with their saying so; (6) pragmatism explains not what truth is, but only how it is arrived at; (7) pragmatism ignores the theoretic interest; (8) pragmatism is shut up to solipsism. *The Ground of the Time Illusion* (pp. 18-29): H. A. OVERSTREET.—For idealism time is illusory appearance. Its illusory character is illusion of perspective, motivated chiefly by egotism through undue emphasis on present moment. The result is division of self, and the remedy is to put the whole self into

each moment. In this way the perfect self is timeless. *Matter in Ancient and Modern Philosophy* (pp. 30-41): C. F. KEARY. - Modern thinking, owing to its familiarity with science, sets the *a priori* of time before the *a priori* of reason, and the result is the notion of brute matter. *What is the Function of a General Theory of Value?* (pp. 42-62): WILBUR URBAN. - Changes in actual human values have shifted the philosophical center of gravity from problem of knowledge to problem of values. Various sciences study different types of value. A general theory of value is required which shall comprehend all spheres of human values. *Discussion. Determinism in Motives: a Reply* (pp. 63-65): BERNARD C. EWER. - Motives antedate and thereby cause decisions. Motives are not, however, conceived as terminated before decision begins. *Determinism and Indeterminism in Motives: a Rejoinder*. G. W. CUNNINGHAM. - Causation of decision by motives is inconsistent with the claim that decision is undetermined. *Reviews of Books*: James Mark Baldwin, *Thought and Things: Vol. I., Functional Logic or Genetic Theory of Knowledge*: J. E. CREIGHTON. Mary Whiton Calkins, *The Persistent Problems of Philosophy*: ELLEN BLISS TALBOT. Henri Bergson, *L'évolution créatrice*: B. H. BODE. *Notices of New Books. Summaries of Articles. Notes.*

RIVISTA FILOSOFICA. August-September-October, 1907. *Che Cosa Consti* (pp. 425-457): B. VARISCO. - A criticism of Ormond's "Concepts of Philosophy." Exception is taken to the extreme emphasis on consciousness and to the monism of the work criticized. Primary data of consciousness are existence of myself, of other subjects, and of other things not subjects. *Valore e abitudine* (pp. 458-474): S. TEDESCHI. - One type of esthetic satisfaction is in the presentation of a given type, yielding the impression of the normal as contrasted with the abnormal. This is a product of habit. *Fede e ragione* (pp. 475-493): G. SALVADORI. - Continued. Reason can not exhaust the content of reality. Since the moral consciousness is the highest product of natural evolution, nature may exhibit purpose in this direction. Faith need not contradict science; but may complete it. *La Posizione logica del rapporto giuridico* (pp. 493-498): L. MIRANDA. - Back to Hegel. *Questioni di attualità* (pp. 499-527): *L'anticlericalismo* gi. vi. - The present anticlerical movement, though called a Catholic movement, is not so. It is not a liberal movement, therefore not democratic. *Kuno Fischer e lo "spirito"*: A. FAGGI. - A discussion of Kuno Fischer's "Ueber den Witz." The *spirito* (= *Witz*) is, according to Fischer, the appreciation of the comic, which is at the opposite pole from the sublime. *Rassegna Bibliografica* (pp. 528-544): *Opere di*: A. Banucci, G. Trivero, Z. Zini, F. de Sarlo, G. Cald. *Il Congresso di Parma* (pp. 545-555): P. F. NICOLI. *Discussioni sulla libertà* (pp. 556-569): G. Cald, B. Varisco: *Sommari delle riviste straniere. Libri ricevuti.*

Diels, Hermann. *Die Fragmente der Vorsokratiker*. Zweiter Auflage, zweiter Band, erster Hälfte. Berlin: Weidmannsche Buchhandlung. 1907 Pp viii + 864.

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 Lloyd, Alfred H. *The Will to Doubt*. An essay in philosophy for the general thinker. London: Swan Sonnenschein & Co.; New York: The Macmillan Co. 1907. Pp. x + 285. \$1.25 net.
 Surbled, Georges. *Le sous-moi*. Paris: A. Maloine. Pp. 153.
 Wood, Mary Hay. *Plato's Psychology in its Bearing on the Development of Will*. London, New York, and Toronto: Henry Frowde, Oxford University Press. 1908. Pp. 62. 2s. 6d.

NOTES AND NEWS

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

GENTLEMEN: Having just read with much interest Dr. Morton Prince's "Discussion" in Vol. V., No. 3, of your JOURNAL, I think it worth while to suggest to him and to psychologists in general that an agreement in relation to the questions under consideration would probably be reached if we would all avoid the use of the word "subconscious" altogether.

The word consciousness is employed in two senses; first, as the equivalent of *psychic existence as such*, as when one discusses the hypothetical consciousness of the plants; and second, as the equivalent of *awareness*, as when one says that he was so interested in meeting an old friend at the opera that he had no consciousness of the music.

I take it that when men like Janet and Prince defend the existence of the "subconscious," they mean to claim that there are psychic existents which do not involve awareness.

Their opponents, on the other hand, are accustomed to think in terms of consciousness as the equivalent of awareness; and have never gone beyond the objection that to speak of subconscious consciousness is a contradiction in terms; an objection they are justified in pressing so long as they are not made to understand the manner in which Janet and Prince and those whom they represent use the word subconscious.

Whether we follow Janet and Prince as I do, or do not follow them, we must agree that what they are talking of when they speak of subconscious states, are states which are by hypothesis not in the field of attention, but which nevertheless are psychic existents. Hence I suggest that we all agree to use the term inattentive consciousness, or subattentive consciousness, instead of the term subconsciousness. I think this procedure would clear away most of the difficulties found by the opponents of Janet and Prince, and would lead psychologists in general to a better comprehension of the important light that is thrown upon the nature

of consciousness by such brilliant experiments as those devised by Dr. Prince.

Yours very truly,

HENRY RUTGERS MARSHALL.

NEW YORK CITY,

February 3, 1908.

The Athenæum of January 11 contains the following abstract of a paper read by Mr. G. E. Moore before the Aristotelian Society, on January 6, in criticism of the pragmatist theory of truth as presented in the recent book of Professor William James: "Professor James seems anxious to advocate three views about truth, viz., (1) a view about the connection of truth with utility, (2) a view about the 'mutability' of truth, (3) a view about the part played by man in 'making truth.' As regards (1), he does not seem merely to hold the commonplace that most true beliefs are useful, and most useful ones true, he seems to identify truth with utility. And to this identification there are three objections. (a) As a matter of empirical fact, it is not the case that all true beliefs are useful, and all useful ones true; for, whatever sense we give to 'utility,' there are certainly many exceptions either to the one proposition or to the other, and probably to both. (b) He implies that any belief which was useful would be true, no matter what other conditions it might fail to satisfy; that, therefore, beliefs in the existence of things might be true, even if the things did not exist. (c) He implies that just as a given belief may be useful at one time, and not useful at another, so it may be true at one time, and not true at another. And this leads to (2), as to which he seems to hold, not merely (what is true) that a fact may exist at one time and not exist at another, and that the same words may be true at one time and false at another, but also that a belief with regard to what happened, is happening, or will happen at a particular time, may be true at one time, and not true at another. It seems self-evident that no true beliefs are mutable in this sense. Finally, (3) he seems to hold that wherever a man plays a part in making a particular true belief exist, he also plays a part in making it true. But it seems to be the case that man only plays a part in making his beliefs true so far as he plays a part in making exist the things which he believes to exist; and hence it is very doubtful whether he plays any part at all in making true an immense number of his true beliefs."

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

PSYCHOLOGY AS SCIENCE OF SELF

III. THE DESCRIPTION OF CONSCIOUSNESS

THE main problem of this section is the following: to indicate briefly how the doctrine of the self as basal fact of consciousness is essential to the adequate description of our actual experience. I have described the self, in the preceding section, as persistent, inclusive, unique, and related; and I must now try to show that these distinctions are always implied in a full account of any experience.

This proposed description of consciousness, in terms of the characters of the conscious self, can not take the place of the so-called structural analysis of consciousness into elements. On the contrary, the structural analysis, which is common to all forms of psychology, must supplement the description peculiar to self-psychology. From the structural standpoint consciousness, though conceived as self, is regarded (spite of its inherent relatedness and persistence) as if in artificial isolation from surrounding phenomena and as if momentary. The results of the analysis of consciousness, thus conceived, are the so-called elements of consciousness. Concerning the nature of these elements there is, as is well known, much discussion. I have elsewhere argued¹ for the recognition of three groups of them: (1) sensational, or substantive, elements, (2) attributive elements (including at least affections and feelings of realness), and (3) relational elements. For lack of time I shall not here repeat my reasons for this classification since my present concern is rather to outline and to estimate the different forms of psychological procedure than to discuss any one of them in detail. It is, however, worthy of note that the tendency of contemporary psychology is everywhere toward a supplementation of the older view² which recognized only sensational, or at most sensational and affective, elements. Structural psychologists who, like

¹ Cf. "An Introduction to Psychology," Chapters VIII.-X.; "Der doppelte Standpunkt in der Psychologie," pp. 14-32.

² For recent indications of this tendency, cf. Stumpf, "Erscheinungen und Psychische Funktionen," Berlin, 1907; and R. S. Woodworth, "Imageless Thought," this JOURNAL, Vol. III., pp. 701 ff., especially p. 705.

Titchener, oppose the doctrine are, I think, misled by their inclination to classify psychic phenomena by reference to physiological distinctions.³

Since, however, the basal fact of psychology is the conscious self, immediately known as persistent, inclusive, unique, and related, it is evident that a structural analysis, although essential, does not supply a complete description of any conscious experience. Such analysis is, in fact, subsidiary to the study of these characters of the self as other-than-momentary-and-isolated. It must be borne in mind, throughout, that—on this view—our consciousness always includes in varying proportion and degree the awareness of the inclusiveness, the persistence, the uniqueness, and the relatedness of the self: only, therefore, as emphasized, or as further differentiated, may these characters serve to distinguish one form of consciousness from another. So far, now, as I can observe, the consciousness of myself as *including* self is equally present in all kinds of experience and is not, therefore, a distinguishing mark of any; the awareness of *persistence* is emphasized in recognition, in anticipation, and in the other experiences which involve a consciousness of past or of future; the emphasized consciousness of *uniqueness*—in other words, the individualizing consciousness—is a factor in many kinds of experience. (It should be noted that—although uniqueness is primarily a character of the self—not merely the I, or myself, and the related other self, but even the impersonal object of consciousness may be individualized.) The consciousness, finally, of at least two sorts of *self-relatedness* is characteristic of all sorts of experience. My consciousness is always known (immediately or reflectively) as either receptive or assertive, and as either egoistic or altruistic—that is, as emphasizing either my central subject-self

³ Cf. *Philosophical Review*, 1906, Vol. XV., p. 93, for Titchener's criticism of the conception of relational elements. If I am right, the controlling reason for his refusal to recognize relational elements is the difficulty of assigning their exact nerve correlates. (For a similar comment on Titchener's procedure cf. Angell, "The Province of Functional Psychology," *loc. cit.*, pp. 81-82.) This reasoning is, however, inadmissible since psychological description should not take its cue from physiology. In his constructive treatment of relational experiences Titchener is driven to what seems to me the absurdity of describing them as essentially cases of verbal association. He says, for example: "We speak of a comparison of two impressions when the ideas which they arouse in consciousness call up the verbal associate 'alike' or 'different'" ("An Outline of Psychology," § 85). This is surely an improbable hypothesis. The mere presence of verbal imagery obviously is not a distinctive mark of comparison, and if Titchener's meaning is that comparison is characterized essentially by the specific verbal images "alike," "different," then, on his principles, the German whose verbal reaction is "gleich" or "verschieden" would be incapable of discrimination.

or else that other-than-self, to which I am related. And when this "other" is an other self, then the altruistic consciousness becomes a sharing, or sympathetic, experience.

For brevity's sake I propose, in place of a detailed description from both these standpoints, an annotated summary of the main results of such a description of consciousness; and in order that the summary may in some sense represent the full conclusions of this

PSYCHOLOGICAL CLASSIFICATION OF

	PSYCHICAL PHENOMENA.			RELATED NON-PSYCHICAL PHENOMENA.	
	<i>Through emphasis of dominant structural elements:—</i>	<i>As unique, persistent and related.</i>		<i>Physiological excitation: in particular, of</i>	<i>Biological reaction:—</i>
		<i>Immediately known as:—</i>	<i>Reflectively known as:—</i>		
Perception.	Sensational.	Receptive.	Sharing with unparticularized other selves; Particularizing impersonal object	End-organs; Afferent fibers; Sense-centers.	Immediate.
Imagination (and Memory).	Sensational.		Receptive; ⁴ Private; Particularizing impersonal object.	Association fibers; Sense-centers.	(Relatively) immediate.
Thought. ⁵	Relational (non-temporal).		Receptive; ⁴ Sharing with unparticularized other selves.	Association-centers (?); Association fibers (?).	Delayed.
Recognition and Anticipation.	Relational (temporal).	Persistent.	Receptive. ⁴	Association centers (?); Association fibers (?); Sense-centers.	Immediate or Delayed.
Emotion.	Affective.	Receptive; Individualizing; Egoistic or Altruistic.		Frontal lobes (?); Rolandic areas; Unstriated muscles.	Delayed and Interrupted.
Will.	Relational; Attributive (feeling of realness).	Assertive; Individualizing; Egoistic.		Cortical centers; Skeletal muscles (Excitations following consciousness).	Delayed and Selective (Reactions following consciousness).
Faith (or Loyalty).	Relational; Attributive (feeling of realness).	Assertive; Individualizing; Altruistic (sympathetic).		Cortical centers; Skeletal muscles (Excitations following consciousness).	Delayed and Adaptive (Reactions following consciousness).

⁴ Memory and recognition are often, and thought is commonly, the result of assertive consciousness (will).

⁵ For amplification, cf. below, pp. 118, 119.

series of papers I shall include an enumeration of the more important physiological and biological phenomena which I have treated as explaining, or at least as serving to classify, consciousness.⁶ I must, however, say explicitly that only the general outline of this scheme is drawn with confidence. It will, I trust, be modified not only by my critics, but by myself, and it needs at many points to be filled in by the results of observation, both experimental and purely introspective.⁷

I ought not to discuss in detail these different experiences, so briefly described, for, in essentials, this account of consciousness closely resembles that which I have elsewhere given. Certain amplifications and corrections of my earlier statements must, however, be mentioned. The first of these is purely verbal: I have replaced the terms "passive" and "active" by the more closely descriptive expressions "receptive" and "assertive." By this usage I hope to meet the objection that consciousness is never rightly viewed as passivity, while I retain a distinction in itself important.⁸

A more important amendment of my teaching is the following: I have tried to differentiate carefully between immediate and inferred distinctions; that is, between the immediately experienced factors of a given consciousness and the characters which, in the effort to classify, we reflectively attribute to it.⁹ This change, I

⁶ It will be understood that the statements (necessarily condensed) of the table which follows attempt only to name distinguishing physiological correlates of the different kinds of consciousness. In no case, therefore, do they claim to be complete. In particular, they omit all reference to the motor accompaniments of sense consciousness (and the corresponding brain excitations), and to the excitation of sense centers during thought, emotion, will, and the like.

It will be noted, also, that will and faith are classified by reference to physiological and biological phenomena which follow, and do not precede, consciousness. In the ordinary "causal" use of the term, these phenomena could not, therefore, be named explanatory, though they may certainly be used as supplementary means of classifying will and faith.

⁷ I may take this occasion to thank Dr. Jodl for constructive criticism of this sort in a review in the *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, 1906, Bd. 40, p. 306.

⁸ Cf. Royce's opposition of "docility" to "mental initiative," in his "Outlines of Psychology."

⁹ This procedure is rather an explanation than a description of consciousness, though the explanation is through reference not to physiological or biological, but to psychic facts. Thus, the phenomena to which in this case perception is linked are not facts of nerve structure, but unparticularized selves sharing the perceiver's experience. Purely psychological explanations in terms not of selves, but of ideas or of functions, also occur: for example, a particular train of imagination may be explained as due to the frequency or vividness of occurrence, in previous experience, of ideas similar to its initial image. I make these comments in order to show that my conception of psychology does not imply the doctrine (which, indeed, I heartily repudiate) that explanation is of

think, meets the most frequent objection of detail to my description of conscious experiences. I have heretofore said that perception and imagination, indistinguishable on the basis of structural analysis (since both are sensational), may be opposed in that the perceiver is conscious of himself as sharing the experience of unparticularized other selves. To this account of perception many of my critics have replied by the assertion that their consciousness in perceiving certainly does not include this awareness of similarly conscious other selves.¹⁰ No one, however, has denied that we reflectively make this distinction, that we say "I was perceiving, for these others also shared my experience" or "I imagined it, for no one else shared the vision." This means that even though there be no immediately experienced difference between perception and imagination there is still a distinction in psychological terms—that is, that we reflectively describe perception as a sharing, a common experience. The description of imagination as self-consciousness is (as, indeed, I have always taught) in exclusively reflective terms. Not at the time of imagining, but in later psychologizing moments, does one compare one's imagining with one's perceiving and realize its privacy.

A third amplification of my earlier account of consciousness is the distinction of the other-than-self, of whom one is always conscious, according as it is personal or impersonal, that is, self or not-self.¹¹ In this way I have tried to meet the objection of those of my critics who believe that I have heretofore conceived the necessity in non-psychic terms. (Cf. a valuable paper by Professor G. M. Stratton on "Modified Causation for Psychology," *Psychological Bulletin*, 1907, Vol. IV., pp. 129 ff.) For purposes of classification it is, however, clearly better to confine oneself, so far as possible, to descriptive distinctions.

¹⁰ For the criticism, cf. H. J. Watt, *Archiv für die Gesamte Psychologie*, 1906, p. 117; F. Arnold, *Psychological Bulletin*, 1905, Vol. II., p. 370; M. F. Washburn, this JOURNAL, Vol. II., p. 715. It is fair to add that I have admitted in my different discussions the possibility that the "community" in perceiving is a reflectively observed character. Cf. "An Introduction to Psychology," p. 172, and "Der doppelte Standpunkt in der Psychologie," p. 44.

¹¹ Cf. my former statements of this distinction with reference to emotion, will, and faith: "An Introduction to Psychology," pp. 276 ff., 310, 311; "Der doppelte Standpunkt in der Psychologie," pp. 63 ff. I still think, however, that the distinction between "external" and "internal" is not essential to the basal outlines of a psychological classification, and I am convinced that a division founded simply on these relations of the self must be insufficient. Professor Angell, for example, in his "Psychology" considers consciousness under two heads: (1) "cognition," which informs us of objects and relations external to ourselves, and (2) "feeling," which informs us of our own internal condition. The insufficiency of the principles is evident in that Angell is driven to include under cognition "concepts," "judgments," and "meanings," which surely may be internal as well as external—one may, for example, have a conception of feeling, and one may reason about volition.

relations of the self as too exclusively personal, leaving out of account the fact that the self is aware of its relations to situations, objects, and ideas, as well as of its relations to persons.¹² It is evident that most of the characters which I attribute to consciousness hold equally whether or not the other-than-self be conceived as personal or impersonal, as self or as external. The self may be receptive in relation to person or to thing, it is "altruistic" when it lays stress on the other-than-self, however regarded; it may individualize other self or object. Only the conception of sharing or sympathizing requires the conception of the other-than-self as personal.

It is noticeable that this explicit recognition of the other-than-self as either impersonal or personal facilitates the description of perception and thought by ascribing to each a twofold object.¹³ In perceiving and in thinking I am conscious (immediately or reflectively) not only of selves who share my experience, but of the impersonal object of our common experience; and both together constitute the total object of my consciousness, that is to say, my environment. Similarly, sympathetic emotion and faith in a person may have impersonal as well as personal object: for instance, I may sympathize with Lieutenant Peary in his yearning for the North Pole. In egoistic emotion and in will, on the other hand, my object is either personal or impersonal. Thus, I dislike person or thing, and I dominate other self or impersonal environment. It should be noticed that the impersonal object of emotion or of will is distinguished in the following way from the impersonal object of imagination or of perception: both objects are particularized, that is, looked on as unique, but the object of emotion or of will is always immediately known as particular, whereas the object of perception or imagination is only reflectively individualized. My admiration or my distaste for a certain house includes a consciousness of its uniqueness, whereas I perceive or imagine the house without being conscious of it as either particular or general, and only later, on reflection, classify it as a "this," not an "any."

This suggests a necessary expansion of the account of thought as given in the summary, which precedes,—an account there abbreviated for sheer lack of space. There are two main forms of thought which differ with respect to two characters of the impersonal object of thought. The first is generalization, in which the imper-

¹² Cf. K. Bühler, *Deutsche Literaturzeitung*, 1906, p. 3129; F. Arnold, *Psychological Bulletin*, 1905, Vol. II., p. 371.

¹³ The need of some such modification of my account of thought was indicated by Professor M. F. Bentley in a review published in the *American Journal of Psychology*, 1902, Vol. XIII., p. 167.

sonal object is immediately known as unparticularized, or general: we generalize when we discuss animal or triangle or choice in general, that is, when we are conscious of any animal or triangle or choice, and not of some special beast or figure or decision. In the other forms of thought—for example, in comparison and in causal thinking—the impersonal objects of our thinking may be known (but reflectively, and not immediately) as individualized, that is, as particular. One traces the relation of this explosion to that lighted fuse, and one compares the odor of this rose with the fragrance of this lilac. Generalization differs, therefore, from the other forms of thought in that its impersonal object is (1) immediately (not reflectively) realized as (2) non-individualized. All forms of thought are, on the other hand, alike in the reflective consciousness of sharing with unparticularized other selves;¹⁴ and all are essentially receptive forms of consciousness, though most often occurring as result of volition. It is true that one conventionally describes thought as “active,” or “voluntary,” but as a matter of fact one is as receptive in one’s consciousness of a given relation as in the consciousness of blue or of red. The attitude of thought is, in truth, radically different from the assertiveness of will; and we call thought voluntary, or active, only because of the voluntary attention to a given topic and the voluntary inhibition of distracting objects which, ordinarily, precede it.

It will serve to review and still further to elucidate all these principles of description if I dwell in slightly greater detail on the nature of emotion. I have described emotion as essentially an affective consciousness, immediately realized as individualizing, either egoistic or altruistic (often sympathetic), and receptive. The first of these epithets is the result of structural analysis and will not be disputed. On the other hand, it does not go without saying that emotion is a receptive experience. For when one reflects upon the tumult of passion, the wildness of grief, the excitement of joy, one is tempted to regard emotion as preeminently an assertive kind of consciousness. I believe, however, that this view of emotion either confuses bodily movement with the mental attitude of assertiveness (activity, in the narrower sense of that term), or that it gives the name emotion to an experience which is really a compound of emotion and will. By assertive consciousness I am sure that we mean either the imperious, dominating attitude which characterizes will, or the adoptive, espousing, acknowledging attitude of faith. And

¹⁴ Cf. Professor J. M. Baldwin’s conception of thought, in particular his discussion of “community . . . the common or social factor in all the processes of thought,” in the *Psychological Review*, Vol. XIV., p. 400.

though emotion may, it is true, be accompanied or followed by assertive consciousness, in itself it is no such assertive attitude, but a consciousness of receptive relation to the other-than-myself.

More distinctive than the realized passivity of emotion is its doubly individualizing character. On the one hand, my consciousness of my own individuality is vivid in my emotions—in my likings and dislikings, my hopes, my shame, my envy. Even esthetic emotion offers only a seeming exception, for my individuality, though altered, is not lost in it.¹⁵ And I am equally conscious, in emotion, of the uniqueness of the other-than-self. I do not love "any" kindly person, or despise cowards in general, and I am not esthetically thrilled by "scenery": I love this person, and no other, however similar, will take the place; I scorn this particular turncoat; I feel the beauty of this misty ocean outlook. Within the class of emotions, thus defined, the most important distinction is that between the egoistic emotions, which conceive the other-than-self as merely ministering to narrow personal feeling, and the altruistic emotions—especially sympathetic personal feeling—in which one merges oneself in the happiness or in the unhappiness of another self. But I resist the temptation of commenting in more detail on this distinction and on other forms of consciousness, in the fear of obscuring the boundary outlines of my conception.

It is necessary, in conclusion, to consider certain fundamental objections to this theory of consciousness. Besides the criticisms already discussed, two serious objections have been brought forward. The first, which is urged by Titchener, is the following: self-psychology has no right to the use of structural analysis. "How a process-consciousness," Titchener says,¹⁶ "and an ego-consciousness can be analyzed into the same elements without the reduction of the latter to the former I can not see."¹⁷ If by conscious self (Titchener's ego-consciousness) were meant a special kind of idea, this comment would obviously be correct. But by "conscious self" is meant, as has been shown, the concrete reality of which the idea is a mere abstraction. It follows that all the positive content of the idea must be attributed to the self. In truth, the analysis into elements is an analysis of the self's consciousness when the self is conceived without reference to other selves or to its own past or future. It is an analysis essential to the full understanding of the self, but it certainly is not an exhaustive account of our awareness of self.

¹⁵ Cf. "An Introduction to Psychology," pp. 278-279.

¹⁶ It will be remembered that mental process is Titchener's synonym for "idea" or "psychic content." For criticism of his right to use the term cf. the first paper in this series, this JOURNAL, Vol. IV., p. 678.

¹⁷ *Philosophical Review*, 1906, Vol. XV., p. 93. Cf. M. F. Washburn, *loc. cit.*, p. 716.

The final criticism of this view of psychology assumes the general correctness of the description of consciousness in terms of self, but argues that such a description is unnecessary. The only detailed statement of this difficulty is, so far as I know, that of Professor Margaret F. Washburn. She states the issue clearly. Self-psychology, she holds, while often possible, "is not, therefore, a necessary adjunct to process psychology."¹⁸ For instance, she says: "Let us take the emotion of sympathetic joy. I can describe this as the attitude in which I recognize and rejoice in the existence of joy in another self. I can also describe it perfectly well in terms of process psychology. The emotion of joy in general may be structurally analyzed into the sensational elements of the idea or ideas occasioning the emotion, the sensational elements resulting from the bodily changes involved, and the resultant affective tone derived from all these sensational components. When the emotion is one of sympathetic joy, the only modification that our structural analysis needs is this: the occasioning idea is, in such a case, an idea of the emotion, that is, a weakened reproduction of the emotion associated with *certain ideas which mean to us the personality of another—ideas of his appearance and movements or words, perhaps. When I think of my friend's joy I think of how he will look, what he will do and say, etc. My idea of his personality may be analyzed structurally into sensational and affective elements quite as well as my consciousness of the bodily effects of my emotion.*"

To my mind, Miss Washburn offers, in this passage, an admirable structural analysis of sympathetic joy and a convincing demonstration that such an analysis is inadequate. The elements of consciousness which she names are indeed discoverable, but the enumeration falls far short of describing the emotion. In fact, Miss Washburn seems to me to yield the case for the opposition to self-psychology, by admitting that a consciousness of the "personality of another" does belong to sympathetic joy. For the analysis which she attempts of this consciousness of personality, in the statement to which I have given the emphasis of italics, is assuredly defective. The very expression "idea of personality" is a misleading one, if idea be taken in the technical sense. Assuredly, Damon could never be conscious of suffering with Pythias if Damon-being-conscious-of-Pythias consisted in one complex idea and Pythias-suffering consisted in another. My consciousness of my friend's appearance and words does indeed include these elements, sensational and affective, but it includes more than this, else it would be impossible to explain why a feeling of joy

¹⁸ This JOURNAL, Vol. II., p. 715. Miss Washburn, it will be noted, follows Dr. Titchener in the use—unjustified as I have tried to show—of the word "process."

does not accompany every complex of similar verbal and visual images; whereas, notoriously, two people looking and speaking alike may be objects, respectively, of my sympathy and of my indifference.

The failure of this effort to show the unessential character of description in terms of self-psychology leads me to reaffirm the assertion that an adequate account of consciousness includes, with an analysis into structural elements, an account of the self as unique, persistent, and in relation to an environment personal and impersonal. The merely structural psychologist's treatment of emotion, thought, recognition, and the rest is indeed true so far as it goes, yet it goes but part way toward portraying the tumultuous chaos of the conscious life. And psychology is both defective and artificial so long as it undertakes observation, experiment, and scientific description in disregard of the basal fact of the science.

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DISCUSSION

TRUTH AND IDEAS

THE reader of this JOURNAL does not need to be told that truth is an ambiguous word. Nor is its uncertain use confined to philosophers; in popular speech almost as many meanings are assigned to it as in the discussions between pragmatists and intellectualists. Stop three men on the street and ask them "What is truth?" and you will get three different answers. The uncertainty, therefore, is not all of the philosopher's making. But while in popular speech such ambiguity is a matter of no great concern, it is little short of a positive disgrace to philosophy that a word of such importance and in such constant use should have no definite and commonly accepted meaning. It will, therefore, be the purpose of this paper to review the principal meanings given to this word and thus, if possible, to do something toward decreasing its ambiguity.

And to be as brief as possible, I shall say at once that there are three principal senses in which the word truth is commonly used; namely, (1) as a synonym for "reality," (2) as a synonym for "fact," and (3) as a quality or relation belonging to an "idea",—its "trueness."

The first of these uses is quite common in popular speech, and has always a tendency toward vagueness, rhetoric, and a capital T. Such a use of the word is certainly unfortunate both because of its haziness and because the word is badly needed elsewhere; and, con-

sidering the poverty of our language at this point, it would seem unwise to use up a good word like truth on something for which we already have another good word, namely, *reality*. For, of course, if "truth" is to mean everything, it will end by meaning nothing.

This criticism of the identification of truth with reality is, it seems to me, relevant not only to the popular use referred to, but also to the somewhat similar use found in the writings of technical philosophers like Mr. Bradley.¹ With him, indeed, truth is no longer a rhetorical catchword, and yet his treatment of it suffers from much the same vagueness found in popular speech. In fact, it would not be difficult to show that his view of truth as identical with reality involves the same sort of destructive dialectic which he maintains is inevitable for the "copy theory." "Truth is the whole universe realizing itself in one aspect" (p. 172). Truth and reality must be the same, for if there were any difference between them truth would fall short of reality and so fail to be true (p. 170). And yet "in passing over into reality" it ceases to be mere truth (p. 172). In short, in Mr. Bradley's own words, "truth at once is and is not reality" (p. 173). This kind of reasoning, so far from what Professor Dewey calls the concrete situation, is not very satisfactory or persuasive, and seems at times hardly more than logomachy. What it shows is that the term truth in this all-inclusive sense is not very useful as a philosophic tool. It would be much more productive of light if we should say reality when we mean it, and if, ceasing to repeat the rather unfruitful question "What is Truth?" we should ask ourselves instead what we mean by saying a thing is true.

The second general meaning applied to the word truth is much more clear-cut, definite, and justifiable. This is its identification with *known fact*. That twice two is four, that the earth revolves on its axis, that virtue is its own reward,—these we speak of as "truths." In like manner we speak of the various *truths* of science, or of the body of moral or religious truths. Or, going still farther, and combining all the general and important facts known to the race, we may speak of this whole as truth, or even, if you will, as Truth.

The criticisms brought against the first use of the word do not hold here, and this second meaning must be admitted to be quite justifiable. Yet some warning must be offered lest this second meaning for the term be confused with what I shall call its third meaning. It must be clearly understood, for instance, that the present controversy between pragmatists and intellectualists over "truth" has little or nothing to do with this kind of truth—truth, that is, as known fact. Failure to note this distinction has been the source of

¹ See especially his paper "On Truth and Copying," *Mind*, April, 1907.

a great deal of misapprehension on both sides.² The nature of a truth is only distantly relevant to the real issue—the question, namely, what is meant when a belief or idea is said to be true.

This brings us to our third meaning—the quality, namely, which a belief or opinion possesses which makes it “true” instead of “false.” This description is, of course, as yet most indefinite and only tentative, but at least it differentiates truth from reality and from fact, and makes it a quality or relation which characterizes certain ideas, but not others. Just what this quality or relation may be, is, of course, the great question between pragmatism and intellectualism. And the controversy has brought to light three principal interpretations, three possible answers to the question, What is meant by saying a thing is true?

The first of these which I shall mention is the common view, or the intellectualist's view (as you like),—namely, that your thought is true if the object of your thought is as you think it. Whether this be the best explanation of the meaning of truth or not, I submit that it is at least clear, simple, and natural. Thus I believe my friend *B* is in Constantinople. If *B* really is in Constantinople, my thought is true. I confess it is impossible for me to see how anything could be simpler than this. To attempt to make a difficulty out of it or to torture it into some sort of mysterious, metaphysical, and crude “copy theory” seems to me a deliberate manufacture of absurd difficulties. At any rate, if this explanation of the meaning of “true” be not simple and clear, I despair of ever making anything clear to philosophers.³

The two other interpretations of the meaning of truth are those offered by pragmatism—for, as I shall try to show, pragmatists are not altogether at one on this question. And, first, let us consider what I shall call the position of radical pragmatism. It is with considerable reluctance that I attempt to outline this view of truth, for the pragmatist is exceedingly sensitive and is constantly crying out that he has been misrepresented and caricatured. For this reason I shall try, so far as possible, to describe his position in his own words, so that there can be no chance of misrepresentation. “Truth is an experienced relation of characteristic quality of things,” says Professor Dewey, “and it has no meaning outside of such relation.”⁴

² It may be due in part to this confusion between truth as fact and truth as a relation or quality that the pragmatist insists on the verifiability of all truth. “Unverifiable truths he can not regard as truths at all,” says Mr. Schiller. Of course he can not if truth be taken to mean known fact. It is hard to see why it should be so if truth be a relation between idea and object, as Professor Ja

is it is.

³ Cf. also Dr. *er's* article, “The Anti-realistic ‘How?’” in this JOURNAL, vol. IV., pp. 1 3.

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tions, has its *fundamentum*, namely, the matrix of experiential circumstance, psychological as well as physical, in which the correlated terms are found embedded. . . . What *constitutes the relation* known as truth, I now say, is just the *existence in the empirical world of this fundamentum* of circumstance surrounding object and idea and ready to be either short-circuited or traversed at full length. So long as it *exists* and a satisfactory passage through it between the object and the idea is *possible*, that idea both will *be* true and will *have been* true of that object, whether fully developed verification has taken place or not. The nature and place and affinities of the object, of course, play as vital a part in making the particular passage possible as do the nature and associative tendencies of the idea; so that the notion that truth could fall altogether inside of the thinker's experience and be something purely psychological, is absurd."¹² And in a still more recent article Professor James insists, with equal earnestness and in quite "intellectualistic" vein, that the object of the idea must really be "there," and that if this be not the case neither subjective "satisfactions" nor "utility" and "successful working" can make the idea true. Satisfactions are "insufficient unless reality be also incidentally led to. If the reality he [the pragmatist] assumed were cancelled from his universe of discourse, he would straightway give the name of falsehoods to the beliefs remaining, in spite of all their satisfactoriness. For him, as for the critic, there can be no truth unless there be something to be true about. Ideas are so much flat psychological surface unless some mirrored matter gives them cognitive luster." And in speaking of useful ideas he says, "That these ideas should be true *in advance of and apart from* their utility, that, in other words, their objects should be really there, is the very condition of their having that kind of utility."¹³

I trust I shall be pardoned for these long citations, for they express very much more clearly than I could have done the less radical pragmatic view. It is to be noted that according to this view the truth of an idea is not to be identified with the process of its proof nor with any psychological process whatever, and that it is not to be found within any single finite experience, but transcends, or may transcend, every such experience. It is not "the effective working of the idea," but the relation between an idea and a reality "beyond the direct experience of the particular cognizer,"¹⁴ a relation founded in the *fundamentum* or sum total of all relevant facts, physical as

¹² *Ibid.*, pp. 465, 466.

¹³ "The Pragmatic Account of Truth and Its Misunderstandings," *Philosophical Review*, Vol. XVII., pp. 8, 13.

¹⁴ Professor James in this JOURNAL, Vol. IV., p. 403, note.

well as psychical, and *constituted* by the *existence* of these facts. *It is the truth of the idea that makes it useful; not its usefulness that makes it true.* Since the notion that truth could fall altogether within the thinker's experience is "absurd," it is hardly to be identified with the process of verification or with any other "function of our intellectual activity" which obtains "within our experience." In short, according to this latest pragmatic view, truth is a present condition, not an event which "happens to an idea," and is no more psychical than physical in its nature. It is a relation which, apparently, no one short of a Roycean absolute need ever experience.

So far all seems plain enough. And yet I must confess I am not fully clear as to this new pragmatic position. The long quotation cited above from Professor James would seem to leave but little difference between his view and that of the intellectualist. But Professor James would insist that there is a difference and a great one. His truth, it seems, is "ambulatory" and concrete, while that of the intellectualist is "saltatory" and abstract. "Sensible qualities," he admits, "are not true realities, but only their appearances"; these true realities to which our ideas often refer never get within our immediate experience; but the true idea "brings us at least so far, puts us in touch with reality's most authentic substitutes and representatives." They lead us as near to the real object which we mean as we can ever get; and there, of course, they stop. The pity is that Professor James's explanation stops there too, and hence fails to touch upon the most important part of the question—the relation, namely, between these last terms within our experience and the outer objects of which these experiences of ours are only "substitutes and representatives."

If the chief aim of this paper were controversial I should like to ask whether the truth relation which Professor James says obtains "between an idea and a reality outside of the idea" is an ambulatory or a saltatory relation. If it be ambulatory, how is it we can never ambulate directly to the "true realities," but only to their "substitutes and representatives"? If, on the other hand, this truth relation be saltatory, in what does Professor James's view differ from that of the intellectualist?

Nor do I feel much clearer on these questions after a careful perusal of Professor James's latest attempt (in the *Philosophical Review* for January) to put an end to all misunderstandings. He complains in this article, rather bitterly, of the blindness of his "misunderstanders"; but I think the passages just cited from him and other pragmatists will in part explain our obtuseness. We are told, on the one hand, that felt satisfactions are indispensable to truth, and that truth consists in the concrete "links of experience

sequent upon an idea, which mediate between it and a reality"; and, on the other hand, we are assured that ideas may "be true in advance of and apart from their utility," provided their objects are "really there," quite independently, therefore, of any satisfactions. And in an earlier article, already cited, we learn that truth may consist not in the actual concrete process of verification, but in the conditions that make verification merely *possible*, and that "the idea will both *be* true and will *have been* true of that object whether fully developed verification has taken place or not." Now if the idea may be true prior to any one's satisfaction and prior to the concrete links of experience sequent upon it, how can it be said that the satisfactions and the concrete links are "indispensable" to truth? On the other hand, if they are indispensable, how can the idea have been true in advance of them? In short, are satisfactions indispensable or are they not? Does the truth of an idea consist in the concrete process of its verification, or in the condition of correspondence that makes such a process possible prior to its verification and to the resulting satisfactions? If, on the one hand, satisfactions are indispensable and truth is the process of actual verification, or is at least dependent upon it and therefore impossible prior to it, then, of course, it follows that the fact that the object of the idea is really there does not make the idea true. Thus John's idea that Peter has a toothache would not be true until John is satisfied, even if, as a fact, Peter actually has a toothache, and although at the same time it is true to Paul who is satisfied. In like manner pragmatism will be true only if it satisfies us, and hence it may be both true and not true at the same time and in the same sense to different people. If, on the other hand, satisfactions are *not* indispensable, if truth is merely the condition which makes verification possible, and if a belief may be genuinely true before it is verified and without any one's feeling satisfaction, then it is hard to see that pragmatism has contributed anything in the least original or new to the conception of the truth relation. Will the pragmatists tell us plainly which of these two contradictory views is orthodox pragmatism? For those of us who are still bound by the shackles of a "static," intellectualistic logic are unable to accept them both at the same time, owing to our possibly superstitious reverence for the principle of contradiction. It may be that if we were pragmatists we should have no such scruples; but on this I dare not venture an opinion.

However this may be, I suppose the pragmatist will insist at any rate that the idea gets its truth not from its "correspondence," but from the fact that it is "an instrument for enabling us the better to have to do with the object and to

act about it."¹⁵ And this suggests an ambiguity in the word *idea* which in my opinion is responsible for a great deal of the misunderstanding between pragmatists and intellectualists. In his discussions of truth the pragmatist uses the word "idea" to mean any representative content that leads to action or helps bring order into a given situation. Hence Professor Dewey's synonym for it—namely, "plan of action." Now it is obviously almost inevitable that if the term *truth* is to be applied to "ideas" of this sort, it can not retain the meaning given it by the intellectualist, as defined above.¹⁶ As a "plan of action" is not an assertion about something outside our experience, but a way of grouping our data or guiding our conduct, its "truth," of course, can not be said to depend upon its correspondence with any outer reality. One might, indeed, wonder that the word *truth* should be applied to it at all, but once so applied it is evident that there is nothing for it to mean but usefulness and successful action. A true idea in this sense is, therefore, one that works. This is especially manifest in the case of the "laws" of science, and I believe it was in this connection that the pragmatic identification of truth with usefulness arose. In so far as a scientific law is a mere shorthand expression for our experience, a mere formula for the condensed description of our perceptions, its truth may be said to consist in its working. The Copernican theory describes a greater number of phenomena and enables us to handle them more easily than does the Ptolemaic, and hence is considered "truer,"—that is, better for our purposes. Or take Professor Dewey's example of the invention of the telephone. Here was a "plan of action" that worked itself out and proved itself "true." In short, if an "idea" proves itself a useful tool it is called true, and thus truth comes to be regarded as merely "a form of the good." And it must be admitted that if the word *true* is to be applied to inventions and similar plans at all, then their "truth" is indeed "wholly an affair of making them true."

The intellectualist, however, would not be willing to admit that the predicates *true* and *false* can be rightfully applied to plans of action or inventions at all. When he says an "idea" is true he uses the word in quite a different sense—namely, as meaning a *judgment*. To him an idea which is not a judgment, but is a mere image, or plan, or formula, may lead in what direction it likes, it may be useful, successful, satisfactory, or their opposites, it may have any function you will, but it is not in the category of things that can be either

¹⁵ This JOURNAL, Vol. IV., p. 398.—I suppose Professor James would make the reply suggested, though I confess I can not see how such an assertion would be consistent with the admission that truth is a relation.

¹⁶ See p. 124 of this paper.

true or false. In Bosanquet's words, "Truth and falsehood are coextensive with judgment."¹⁷ This being the case, the intellectualist does not and can not consider "true" a predicate of the same kind as "benevolent," or "luminous," or "good," nor can he identify truth with a "function," or "leading," or "process." The usefulness of a plan of action depends, of course, upon its being used. A judgment, on the other hand, may be useful and good, but that is not what makes it true. A judgment is one thing; a plan of action quite another. It is no wonder, then, that using the word "idea" in such radically different senses, the intellectualist and the pragmatist should often misunderstand each other and fight as those who beat the air.

The distinction I have just pointed out seems to be quite overlooked by thinkers of various and radically different schools, for example, by Professor Dewey, on the one hand, and Professor Royce, on the other.¹⁸ These writers often deal with the subject of truth as if there were no difference between judgment and purpose. To attempt in this way to make purpose and activity absorb everything else seems to me most unfortunate for clear thinking. Take, for instance, such a judgment as that referred to a few pages back—"My friend *B* is in Constantinople"—or John's judgment "Peter has a toothache." How can it be said that here "the agreement, correspondence, is between purpose, plan, and its own execution, fulfillment"?¹⁹ Where is the plan, and where the fulfillment? Or take at random any judgment from Professor Dewey's writings—as this: "Reality as such is an entire situation." How can this—at least without much forced and unnatural interpretation—be called a *plan of action*? Or look at it from the other point of view. Granted that if the term truth is to be applied to a plan or purpose at all it may as well mean successful execution as anything else, is not the use of the word in this connection, to say the least, unnatural and unnecessarily confusing? An invention may be useful and may work and be successful, my plan to go down town²⁰ may be wise and

¹⁷ "Logic," Vol. I., p. 72.

¹⁸ Professor Moore has conclusively shown that if "idea" be taken to mean purpose, as Royce insists it shall, then the "truth" of an idea must be the fulfillment of the purpose within our experience, and not (as Royce says) the "correspondence between our ideas and their objects." To reach any relation between idea and a reality outside of one's private stream of consciousness Royce has practically to give up the purposive function of ideas as their most essential characteristic, and to speak of them as *representative*. See "The World and the Individual," Chaps. 1, 7, and 8, and Moore's "Some Logical Aspects of Purpose," in "Studies in Logical Theory," pp. 341-382.

¹⁹ Professor Dewey, in "The Control of Ideas by Facts," this JOURNAL, Vol. IV., p. 202.

²⁰ See Mr. Sellars's admirable discussion in this JOURNAL, Vol. IV., p.

bring good results, but to call either of them *true* would seem to be a step toward the invention of a new language.

The aim of this paper has been chiefly to clear up the meaning of certain important terms constantly used in the controversy over truth, rather than to take up the cudgels (except incidentally) for either side. Before closing, however, I wish to point out one fact which is not altogether one of terminology. While it is every one's privilege to define his own terms in his own way, provided he uses them consistently, it is also incumbent upon us all to recognize every genuine and relevant fact or relation, no matter by what name we call it. And now I should like to put the following dilemma. Either there is a real and relevant world outside of your private stream of consciousness—it may be a material world or one made up of other selves—or else there is no such world and you need reckon only with your own private experiences. If you admit that this outer world exists and that you judge about the things or persons in it, you must also admit that the relation between these things or persons and your judgments of them is a fact which deserves to be recognized, and that, in one sense at least, the validity of your judgments depends on this relation. You may call this relation truth or reserve the term truth for something else, as you like; but, aside from terminology, once you recognize this relation and its bearing upon your judgments, you have essentially accepted the intellectualist's position. On the other hand, deny the existence of this relation and its relevancy to your judgments, and you either deny that there is any world outside your own conscious experience or else you affirm that if such a world there be it is nothing and never can be anything to you. And when you have done this, how far are you from solipsism? The intellectualist might be willing to admit that if this be a solipsistic world "truth" might as well mean "effective working" as anything else.²¹ But if it be a world in which one makes genuine references to outer realities that never come within his private stream of consciousness, then the relation between those realities and one's judgments about them (a relation which from the nature of the case one can never experience) is something which can not be neglected, but must be reckoned with, call it what you will.

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²¹ It is interesting to note in this connection that all Professor Dewey's and Professor Moore's contributions to "Studies in Logical Theory," as well as most of Professor Dewey's more recent papers on truth and knowledge, could perfectly well have been written from the standpoint of solipsism—and, in fact, it is difficult to see how some of them could have been written from any other.

REVIEWS AND ABSTRACTS OF LITERATURE

The Semi-Insane and the Semi-Responsible. JOSEPH GRASSET. Translated by Smith Ely Jelliffe. New York: Funk & Wagnalls Co. 1907. Pp. xxxv + 415.

Hostile and friendly critics alike will welcome the translation of Professor Grasset's study, because the latter brings nearer home the momentous controversy, now being waged across the Atlantic, over the legal status of the mildly insane. Although it has become a platitude that American law and, still more conspicuously, American court practice still permit the most amazing arguments and facts to go to the jury in insanity cases, American attorneys have paid little or no attention to the needed reform. In view of the high development of American psychiatry and our asylum system, it is not a little marvelous that this slothfulness of the bench and bar has been permitted by alienists and those interested in legislation on the insane. In bringing out a somewhat popular treatise of the main medico-legal problem, Professor Grasset and his translator may "start the ball rolling" in the right direction. What is needed just now is not a new original investigation of insanity and responsibility; Heaven knows that enough has been discovered on these topics to keep jurists busy a long time. Information already garnered, theories and opinions under discussion in narrow circles need rather to be disseminated. This is the service the present volume can help render. It should be read by the psychiatrist who has heretofore ignored the legal aspects of insanity and by the lawyer whose knowledge of psychiatry is at best laic.

The book falls into two main parts: the first is concerned with the refutation of the "two-block" and the "one-block" theories of insanity and with the proof of the existence, as a distinct variety, of partial insanity; the second section touches the legal problems growing out of this proof. Professor Grasset champions two hypotheses calculated, one might almost fancy, to arouse controversy: he assails the theory, held by most writers on psychiatry, that psychoses must be classified as a continuum together with normal mental phenomena (popularly phrased in the well-known sayings that "insanity is merely a matter of degree," "all men have some slight touch of insanity," etc.); secondly, he believes that a large class of neural conditions must be recognized at law as true extenuating circumstances, precisely as great provocations now are; he thus reaches the notion of "attenuated responsibility," a *tertium quid* between responsibility and irresponsibility. In defending his tripartite classification of mental states against the "two-block" and "one-block" theories, Professor Grasset seems to have rendered simultaneously a genuine service for judicial and legal practitioners and to have committed a serious error of interpretation as a psychological theorist. From the standpoint of criminal law and certain branches of civil law (notably that covering wills), the semi-insane form a very real class which deserves far wider and franker recognition than it now receives. This class

is defined by the writer as follows: "They are distinguished from healthy minds in the fact that they are psychically diseased, and they are distinguished from the insane in that they preserve a certain degree of consciousness and reason. Some of these patients become insane later, or have been so before. Semi-insanity is then only a period in their history. Some are cured, and they also are only semi-insane for a time. Others pass their whole lives without ever having been at any time wholly rational or wholly insane." Although the writer stoutly resists the suggestion that the cases falling properly under this class vary sufficiently in degree to make the most aggravated indistinguishable from insanity and the least severe indistinguishable from sanity, he can not avoid saying that "the symptoms (of the semi-insane) are naturally the same as those seen in the insane. They can be distinguished in the semi-insane only by their greater limitation and a lesser degree of depth, intensity, duration, and sometimes a lesser tenacity." In this statement the writer unwittingly surrenders his most insistent belief about the sharp demarcation of semi-insanity; a class whose critical marks are differentiated from those of another class only by variations in degree is surely not the closed system that Professor Grasset asserts semi-insanity to be. When the investigator comes to specify the varieties of abnormal behavior properly definable as cases of semi-insanity, his theoretical contention in favor of the tripartite classification has all its weaknesses mercilessly exposed. Defining semi-insanity as a "weakening of the superior psychism and a non-controlled functional hyperactivity of the inferior psychism," Professor Grasset proceeds to ticket as semi-insane all patients showing lucid intervals. So we find among the symptoms of semi-insanity illusions and hallucinations, obsessions, delusions, impulsions, abouliias, parabouliias, disturbances of general sensibility, disturbances of personality, and all varieties of sexual perversions.

Weak as the author's theory is, however, it is easy to see the practical advantages of recognizing a somewhat arbitrarily defined class whose characteristic is a degree of lucidity sufficient to make teaching, threats, and punishment useful, along with medical treatment, in effecting a cure. In the chapters on the social and legal aspects of semi-insanity, the author appears to best advantage with his proposal to commit certain semi-insane criminals simultaneously to prison and to a hospital. The evil effects of exonerating every criminal with mental abnormalities on the ground of insanity and kindly turning him over to the alienists would doubtless be largely prevented by this plan. It would thus be well to accept, as legal conceptions (not as precise psychiatric ones) semi-insanity and its ethical correlate, semi-responsibility; provided, of course, that the specific determination of each individual case be left to a commission of alienists and jurists unhampered by hard-and-fast technical rules. It is greatly to be regretted that Professor Grasset did not distinguish more sharply between the scientific and the social phases of his problem; perhaps this failure has not vitiated his practical conclusions, but it has surely done violence to psychological facts. As the book is primarily a

practical one, however, the critic is unwilling to hold the author more than semi-responsible for the latter offense. If, in spite of a somewhat loose style and too frequent controversial digressions, the volume arouses interest in its topic, it will have served a useful purpose.

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Religion as Functional, Metaphysical, and Normative. A. OOSTERHEERDT.

Reprinted from *The American Journal of Religious Psychology and Education*, Vol. II. Pp. 141-159.

This paper is a thoughtful and interesting study of the religious problem. Its effectiveness is somewhat marred, however, by obscurity of style and a sentence structure that is at times sadly confusing.

Functional religion is religion in the ordinary sense. It has its origin in social phenomena and is an immanent growth rather than a transcendent revelation. It divides life into the sacred and the secular, and expresses itself in certain specific acts, such as church-going, prayer, etc. "After anthropology has shown the rise of religion as a social phenomenon, and after psychology has demolished the ontological reality of religious concepts, religion has been shorn of its divine character. . . . Now since the human being can not endure the thought of being shut off from all intercourse with the divine, and since this intercourse can not be a conscious one, as modern psychology has abundantly demonstrated, what other recourse have we but the metaphysical one, of assuming that all our acts have a direct reference towards God as well as to our fellow men? In this way alone do I see an escape for the religious difficulty that confronts us."

Metaphysical religion is the relation of any part of the universe to the whole of the universe; in the case of conscious personalities it is the relation of the finite self to the infinite self. "But as it is the *reverse relation* from what appears to us, it is plain that this metaphysical religion can never become a conscious affair, can never enter consciousness. From the standpoint of this metaphysical religion, all reactions are religious, but since this is the standpoint of God, which can not even be entertained by us, it needs must be that from our point of view, speaking metaphysically, no reactions are religious, or, speaking functionally, some and some not."

In reply to pragmatists and psychologists who deny ontological significance to our concepts, the writer argues that "consciousness is not merely teleological, it is not merely an adaptation for life, but after it has arisen, it becomes in a sense greater than life: life would not be worth living without consciousness. Further, the idea of God is unique, not, indeed, in its origin, but in its significance; unless an ontological correspondence is *believed in*, no action will follow from it. Let any functional psychologist try to act upon the idea of God and at the same time disbelieve in its existence. . . . There is, undoubtedly, an evolution of theology, and so also of ideas about God, but the fundamental thing about the idea of God, as we now have it, is that it refuses to be merely a mental presentation, and points beyond the mind for its objective counterpart."

Our author is quite right in this argument so far as the realist is concerned. If one admits the ontological significance of any ideas, then the idea of God could have no dynamic value unless it too has an ontological significance. But this is no reply to the thoroughgoing pragmatist who gives up the ontological significance of all ideas. For him value is the only criterion of truth, and if the idea of God is found to have value in actual experience, it thereby becomes true and acquires the same dynamic worth as all other useful ideas.

Now, with direct revelation from God through a supernaturally inspired Scripture discredited, and only the immanent revelation as seen in the growth of the idea of God remaining, a revelation through persons and ideas, the only picture or content that we can make of God is analogous to that of human personality, and this is, almost needless to say, not at all adequate to the reality of God. . . . Our only access to him is a metaphysico-normative one. Only through the normative factors do we have in some sense communion with him. . . . Whatever communion we may have can not be *conscious*, but metaphysical and normative. That of course, invalidates prayer as an act of conscious communion with God. "Prayer does, indeed, bring us into contact with God, but no more than our other conscious activities do. All conscious life is communion with God. . . . When the theory is once fully grasped that religion is *least of all* a conscious affair, although faith in God brings it to consciousness, but that it is preeminently a metaphysical and normative relation, the secularization of most of life from the religious sphere will end; everything will become alike religious, or non-religious, if you will. . . . Only from the side of meaning, of norms, can we approach religion, and attach it to consciousness, thereby declaring that true religion is a steadfast devotion to beauty, truth, and justice. By adhering to our ideals of moral, esthetic, and intellectual relations, we would, indeed, make religion as broad as culture and as deep as character. . . . Both religion and culture are one and the same thing, it is according to the view we take that they are differentiated. Culture is the human aspect of that which viewed from the side of God is religion." This is what our author calls *normative religion*.

"Functional religion, the higher it climbs the more it must grow dependent upon metaphysical religion. That is to say, greater insistence must be put on the direct or immediate relation that all acts sustain towards God. . . . Functional religion must also grow even more normative, and be less institutionalized, more humanized, less doctrinized: become more of a life of the spirit, less of habit. Thus *conscious* functional religion, in the sense of pious exercises or church activity, must become less, but must embody itself in principles of personality."

In short, this "metaphysico-normative religion," of which the actual religions of mankind are but the promise and potency, is a theistic philosophy plus the pursuit of culture. Grant that the *essence* of religion is belief in God as the reality of the ideal, still human life is *psychological* rather than metaphysical. Liebig's extracts have not yet supplanted the roast of beef on the family table, and, until they do, metaphysico-

normative religion will not supersede functional religion. It is the business of the philosophy of religion to elucidate the meaning of religion, not to invent substitutes for it.

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Jealousy. ARNOLD L. GESELL. *American Journal of Psychology*, October, 1906. Pp. 437-495.

This paper is made up of a collection of interesting facts on the subject of jealousy, gleaned from many authors and supplemented by the results of a questionnaire sent to normal school and university students. The subject is treated from three points of view: (1) animal jealousy, (2) human jealousy, (3) special aspects of jealousy. Mr. Gesell finds that both animal jealousy and human jealousy are very complex states and hard to separate from other emotions. In animals it seems to be very closely akin to anger and fear, when the fear contains the element of helplessness. Human jealousy involves besides these two emotions the feeling of self-pity.

Jealousy had its origin in the instincts of self-preservation and self-aggrandizement. All that was necessary to develop it was "a sense of self highly enough developed to feel imminent or accomplished deprivation in situations of rivalry." So it would seem that the gregarious animals, having more possible rivals, should be more jealous than those that tend to live alone. Mr. Gesell thinks that the popular opinion that dogs are so much more jealous than cats bears out this hypothesis. The same thing holds true of human jealousy—it is closely connected with the self or individualistic instincts. "The fundamental law of child psychology which coordinates and explains the facts of child life is the strong sense of self-conservation and self-protection, the jealous care with which the child seeks to preserve himself from everything which can hinder or impede even in the slightest degree his development." The most intense human jealousy is that which accompanies adolescent love-making. Jealousy is of two types—the exciting type and the depressing type. The jealousy of animals and children tends to be of the first type, while that of the adolescent is almost invariably of the second type. Childhood jealousy is more explosive, violent, shorter, more sudden, objective, frank, and is prompted by pettier and more material causes than that of the adolescent. It is overt, aggressive, directed towards some person, while that of the adolescent is painfully subjective and is directed towards the self.

Mr. Gesell differs from Darwin and others in believing that there is a characteristic physical expression of jealousy. He bases his belief on the returns from his questionnaire and upon a slight experiment he performed. In the reviewer's opinion the results are not at all conclusive. From the questionnaires the symptoms described as expressive of jealousy arranged themselves as follows: "flushing 73 (cases); paling 22; chill 16; sweating 26; muscle tension 44; scowling, clenching of fists, compressing of lips, gritting of teeth 60." But these symptoms might be equally

true of anger, grief, fear or hate. Their presence might place the emotion in one of a group of three or four, but would certainly not serve to differentiate it from others akin to it. This fact is emphasized by the experiment, in which a group of students was asked to interpret two pictures, both of which were supposed to portray jealousy. With the first picture 18 out of 24 guessed cupidity, and with the second 18 out of 24 guessed interest as the subject of the picture. "Other judgments were scattered and stated fear, surprise, stealth, etc." The records of the second group of subjects to whom the test was given are not at all clear. At any rate the conclusion that "envy and jealousy have a characteristic, readable, emotional expression, at least in the face," seems hardly justifiable in the light of the evidence produced.

Jealousy is the most severe and most agonizing of the human emotions, "for jealousy," says Gesell, "in its highest forms is not like anger, a whole-souled outward reaction, but is full of schism, conflict, and introspection. The soul, as it were, splits, and, by a miracle both cruel and comforting, subjects itself to its own examination, puts itself upon a rack, gloats over its own sufferings, partakes in them, and pities them."

From the standpoint of pedagogy, our author believes that a "lusty kind of jealousy" in children is a good sign. He does not believe that it could be "omitted from human life with little loss," but that it should be inhibited as soon as possible by indirect and preventive measures, by allowing children to have hobbies, to excel in some field, in order that a "healthy personality sense" may be developed.

Jealousy, as a factor in shaping social progress, seems, according to Mr. Gesell's interpretation, to have played the paradoxical role of advancing both democracy and exclusiveness, of tending to maintain a level and of breaking it. It probably is the "basis of many attitudes which the individual takes towards his fellows." It probably does color social customs and institutions and motivate group action, but to mean anything for sociology this function must be worked out in more detail than this paper pretends to do.

The account of jealousy as given by Mr. Gesell is very interesting and comprehensive; it is probably the fullest account published. From a scientific point of view the paper would have been of more value had the evidence of authors quoted been more carefully weighed, and less credence given to stories of animals and the introspective analysis of adolescents.

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JOURNALS AND NEW BOOKS

MIND. January, 1908. *Non-Phenomenality and Otherness* (pp. 1-19): HUBERT FOSTON.—Real objectivity, or otherness, is revealed primarily in active consciousness, where resistance means persisting activity. Thought, construing experience on a basis of causation, testifies to other-

ness. Pain is an experience of something alien and threatening. These are psychological elements in the notion of reality. *Immediacy, Mediacy, and Coherence* (pp. 20-47): G. F. STOUT. - A criticism of certain positions held by Mr. Joachim in "The Nature of Truth." Knowledge is not mediated by what has only "being for thought." Universals and possibilities are aspects of the real world. Thinking has to do with immediacy related in a context. The immediacy can not disappear in process of mediation. In the advance of knowledge, the test of truth is coherency applied to immediacy. In judgment, unobserved conditions are implicitly affirmed. *Plato's Psychology in its Bearing on the Development of Will* (pp. 48-73): MARY HAY WOOD. - Plato was not indifferent to the will. The most important bearing of his philosophy is upon conduct. The soul is a principle of self-direction. The threefold division of the soul signifies three aspects of one activity. To be continued. *A Posthumous Chapter by J. S. Mill* (pp. 74-78): CARVETH READ. - A paper found among Mill's effects and published in the *Oxford and Cambridge Review* for June, 1907, with the title "On Social Freedom, or the Necessary Limits of Individual Freedom Arising out of the Conditions of our Social Life." The paper is probably the first chapter of a projected volume on the evil influence of "conventionality or conventional propriety in overpowering our personal moral sense or reason: showing how much heavier and more degrading is our bondage to this uncanceled authority than to public law and political government." Mill is skeptical of freedom, but proposes to measure it by the elevation of the motives leading to action. *Discussions: Some Notes on Mr. Hoernlé's Criticism of Idealism* (pp. 79-85): J. B. BAILLIE. Society is an individual with self-consciousness distinct from that of its units. Subject and object are distinct, but not separable, at any level of experience. The distinction between them is the source of all distinction in the course of conscious experience. Variety of experience is due as much to the subject as to the object. In the long run, to unite the greatest diversity in the completest unity is to unite subject and object in a single mode of experience. *A Reply to Professor Baillie* (pp. 86-87): R. F. ALFRED HOERNLÉ. - The disagreement must be largely caused by attaching different meanings to words. *Critical Notices*: A. S. and E. M. S., *Henry Sidgwick: A Memoir*; R. L. Nettleship, *Memoir of Thomas Hill Green*: A. S. PRINGLE-PATTISON. A. S. Pringle-Pattison, *The Philosophical Radicals, and other Essays*: S. H. MELLONE. William James, *Pragmatism*: J. ELLIS McTAGGART. A. E. Taylor, *Aristotle on his Predecessors, being the First Book of his Metaphysics*: W. D. ROSS. *New Books. Philosophical Periodicals. Notes.*

REVUE PHILOSOPHIQUE. January, 1908. *Pragmatisme, humanisme et vérité* (pp. 1-26): A. LALANDE. - A sympathetic study of James's "Pragmatism" and Schiller's "Humanism," but upholding the unity of truth as necessitated by pragmatic principles. *La contradiction de l'homme* (pp. 27-47): F. PAULHAN. - The social and the individual selves are never brought into complete harmony, although the former pretends that its mandates subserve the latter. *La psychologie quantita-*

tive (fin) (pp. 48-70): J. J. VAN BIERVLIET. — Experimental psychologists have a distinctly different problem from that of the psychophysicists and of the psychophysiologists. Their results should be of use to the pedagogist, but they have not yet been so to any considerable extent. *Revue générale* (pp. 71-90): *Guerre et pacifisme* (d'après des ouvrages récents): R. Steinmetz, *Die Philosophie des Kriegeres*; Charles Richet, *Le passé de la guerre et l'avenir de la paix*; Capitaine A. Constantin, *Le rôle sociologique de la guerre et le sentiment national*: JANKELEVITCH. *Analyses et comptes rendus*: O. Hamelin, *Essai sur les éléments principaux de la représentation*: LIONEL DAURIAC. Ernest Belfort Bax, *The Roots of Reality*: F. PILLO. *Systematische Philosophie*, von W. Dilthey, A. Riehl, W. Wundt, W. Ostwaldt, H. Ebbinghaus, R. Eucken, Fr. Paulsen, W. Münch, Th. Lipps. (From *Die Kultur der Gegenwart*) C. Bos. *Revue des périodiques étrangers*: *Rivista filosofica*. *Voprosi filosofii i psiloguii*. *Necrologie*: V. Brochard.

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NOTES AND NEWS

THE "appreciation" of Lord Kelvin in *Nature* of January 2 concludes with the following statement: "He will be known to future ages, possibly even more widely, as a main pioneer and creator in the all-embracing science of energy, the greatest physical generalization of the last century. He was the first to grasp and insist on the universal dynamical, even cosmical, importance of the principle of reversible cyclic processes, which sprang almost in advance of its time from the genius of Carnot. Concurrently with Clausius he soon supplied the necessary logical adjustment of its thermal application; and by his own work, and his collaboration with Joule, he largely constructed the practical essentials of the fundamental, because unifying, modern science of thermodynamics.

JOURNAL OF PHILOSOPHY

LOGY AND SCIENTIFIC METHODS

THE MEANING OF $\sqrt{-1}$

Following discussion is an attempt to suggest something by way of interpretation of the square root of a negative quantity. However, not the discussion of a mathematician, but, as will appear all too soon, of a layman in mathematics, who here now makes apology to the mathematicians for presuming, un- and untrained, to stand in their pulpit. The layman must think and speak for himself, and though he may express platitudes in a way as fantastic and unconventional as it is, in point of view, his thinking and speaking are always of to himself and are not always without some interest to others. In general the contention here is that in the square root of a negative quantity there is—*except for an important qualification to made hereafter*—only an application of the negative to the sphere field of products or areas, that is, to a two-dimensional space, just as in the negative quantity, -1 , there is such an application in the here of mere serial or linear composition or aggregation or, geometrically, of a one-dimensional space. So viewed, the imaginary quantity is essentially no more imaginary than the ordinary minus or negative quantity, although naturally the difference of the field produces different results and renders the quantity itself, $\sqrt{-1}$, useful in different ways.

The discussion proposed is best introduced by a simple problem whose solution will be seen at once to involve imaginary quantities. Thus, given a straight line, $2m$, the problem is to divide this into two parts so that the product of the parts will exceed m^2 by an amount n ; and the solution is as follows: Let x be one of the parts. Then $2m - x$ is the other; $2mx - x^2 = m^2 + n$; and $x = m - \sqrt{-n}$, while the remaining part is $m + \sqrt{-n}$. In other words, as will hereafter be emphasized frequently, the excess of n over m^2 , the product of the line's halves, takes the value of x , as well as that of $2m - x$, into the sphere of negative quantity, *but of negative*
11 y, not as length, but as the root or side of a negative area.
there no excess, were the desired product equal to, or less than,

m^2 , the necessary parts would be quite without such complication.

Plainly, too, with regard to the values $m - \sqrt{-n}$ and $m + \sqrt{-n}$, no other result should be expected; for, in the first place, the equation $2mx - x^2 = m^2 + n$ is distinctly an equation of products or areas; in the second place, the problem, though dealing with a line, or a merely serial aggregate, distinctly asks for parts that are not just component lengths or parts, but sides of an area or factors of a product; and, in the third place, m^2 being the maximum or limiting product or area in the group of what may be called the normal or positive results of divisions of the aggregate or line, any product or area required to be in excess of m^2 , if truly meeting the conditions of the problem, must encroach upon a field of minus areas. Similarly, in a purely linear field a line of length l could be so divided that one of its parts would exceed the line by s , but only if encroachment upon a field of negative lengths be allowed, the required parts being $l + s$ and $-s$.

That minus areas, or products, can have only dimensions, or factors, whose unit is $\sqrt{-1}$ is self-evident. Whence the meaning of this unit, or at least an important idea introductory to the meaning, must be, as asserted, that it represents nothing more nor less than an application of the negative to a two-dimensional field. In the solution of the given problem, however, the parts, sides or factors which were found, namely, $m - \sqrt{-n}$ and $m + \sqrt{-n}$, were only partially imaginary, and this only partial encroachment upon the field of negative areas seems to call for some explanation, although in the case of the line l , divided so that one part should exceed its length, the result was also a mixed one, the parts being $l + s$, or $l - (-s)$, and $-s$, or $l - (l + s)$, and although also logically an unmixed negative is quite beyond what is thinkable.

In explanation, then, of those mixed quantities $m + \sqrt{-n}$ and $m - \sqrt{-n}$, I venture simply to say that they are both mixed because they are both the sides or factors of a mixed area, or product, which is mixed for just the reason, already given, that m^2 is a maximum among all the possible wholly positive values resulting from division of $2m$. Surely, m^2 being a maximum, $m^2 + n$ can have no other meaning except that of the mixed area $m^2 - (-n)$, with the obvious factors $m + \sqrt{-n}$ and $m - \sqrt{-n}$; exactly as with the line l , where, l being the maximum, the part $l + s$ could have no other meaning save that of $l - (-s)$, and the part $-s$ no other meaning save that of $l - (l + s)$.

But now, with so much clear, it will greatly assist the present undertaking to broaden the view, for obviously the cases of division where the area, or product, exceeds m^2 are only terms in a series that will include not only these, but also such as are less than m^2 or as

are greater than $2m^2$, and so on. Most generally, therefore, the terms in such a series may be put in the form $m^2 - (m - x)^2$, where $(m - x)^2$ expresses the difference between the maximum m^2 and the product, or area, that constitutes the term, and giving x definite values, the series runs: $m^2 - (m - 1)^2$, $m^2 - (m - 2)^2$, $m^2 - (m - 3)^2$, ... But, so soon as x is larger than m , $(m - x)^2$ gets the value of $-n^2$, and the terms will have the form, already recognized, of $m^2 - (-n)$, that is, $m^2 + n$, or, in definite values, $m^2 + 1$, $m^2 + 2$, $m^2 + 3$, $m^2 + 4$, ... Furthermore, when n becomes equal to m^2 , the subsequent terms will be $2m^2 + 1$, $2m^2 + 2$, ... Yet, as to these last, it must be remembered that they also can have meaning only when understood as $m^2 - (-m^2 - 1)$, $m^2 - (-m^2 - 2)$... And, not to go farther with this description of the series, it must be remembered also that *all the terms represent products or areas*; and it will be readily observed that as a whole the series is one of certain crises, or at least that the terms as formally represented suggest certain crises. When, for example, x becomes larger than m , the factors x and $2m - x$ at once become in part imaginary quantities, $m - \sqrt{-1}$ and $m + \sqrt{-1}$, $m + \sqrt{-2}$ and $m - \sqrt{-2}$, and so on; and, when n becomes equal to m^2 , the term $m^2 - (-n)$, which as in the series will be $2m^2$, will have the *actual* value of zero, its factors being $m - m\sqrt{-1}$, and $m + m\sqrt{-1}$,—values which, as I understand them, indicate that m^2 has been taken twice, but in such a way that one m^2 belongs to the positive field, the other to the negative. Similarly in the case of the parts of the line l , if the excess of one part over the whole line were to be l , the excessive part as a part would be $2l$, or $l - (-l)$, and while, to repeat, such is in truth its length as just such a part of the line, its own independent value is zero, for it is itself composed of the two parts, $-l$ and $+l$. A diagram may be quite unnecessary, yet will do no harm. Thus, in Fig. 1, let AB be the line of length l , and S^1 , S^2 , S^3 be various dividing points, but S^1 the point by which one part is made to exceed the whole line by its length l . Then S^1B as a

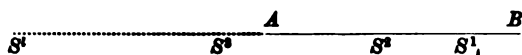


FIG. 1.

part of the line is $2l$, the other part, S^1A , of course being $-l$, but in itself, that is, as itself a whole or a sum, S^1B is equal to zero. And in like manner, with apology for so much repetition, when n becomes equal to m^2 , the resulting term is variously $2m^2$, $m^2 - (-m^2)$, and O .

¹ With x larger than m , $(m - x)^2$ quite by itself would be $(-1)^2$, $(-2)^2$, ... equal to $+1$, $+4$, ... but in the series under examination these areas are made negative and the terms in which they belong, instead of being $m^2 - 1$, $m^2 - 2$, ... are, as given, $m^2 + 1$, $m^2 + 2$, ... or, again, $m^2 - (-1)$, $m^2 - (-2)$, ...

The series, then, of the products, or rectangles, has these two crises; first, when $x < m$, and second, when $n = m^2$. There may be other crises, but another consideration now seems more urgent. The critical term, just shown to be equal to zero, is of course a product; it is a product with dimensions $m + m\sqrt{-1}$ and $m - m\sqrt{-1}$; and although a zero product, or area, having such factors may seem at first thought absurd, yet second thought will make it richly significant. At the very beginning of the series was there not also a product, or rectangle, equal to zero, but with dimensions $m + m$ and $m - m$? This initial term, it is true, could have only the area of the line $2m$, which though $2m$ in length would be zero in *actual* area, but such an area as this, though equal to zero, had a real meaning so soon as the problem, declaring the parts of the line to be factors of a product or sides of an area, was merely stated.² *The statement ipso facto transformed the mere line into a sphere of potential area, and the potentiality was actually in the zero whose factors, or dimensions, were $m + m$ and $m - m$.*³ And the two rectangles, the two zero products or zero areas—what of them? What, in particular, of the peculiar difference between their factors, one having the factors $m + m\sqrt{-1}$ and $m - m\sqrt{-1}$, and the other, $m + m$ and $m - m$? The zero area of the imaginary factors, or dimensions, must also, as is plain, be a straight line of length $2m$, but can it be, following the suggestion of the symbols, that this line makes a right angle with the other? That in the series from one of these zeros to the other there is, geometrically described, a rotation, or at least, whatever be the intermediate transformation, a *virtual* rotation of the original line through 90° ? That the zero area of the imaginary factors is not a second dimension, but a realization of the second dimension of the other zero area?

The questions are certainly important and they seem to call for an unequivocal answer in the affirmative. Lest, however, the suggestion of the symbols be not sufficiently clear, the following somewhat detailed geometrical demonstration is also given; and given only the more confidently since, besides representing the rotation,

² The dimensions of the two zero areas, if written with full regard to their character or quality as not just flat quantities, but as dimensions, would be, in the first case, $m\sqrt{+1} + m\sqrt{-1}$ and $m\sqrt{+1} - m\sqrt{-1}$ and, in the second case, $m\sqrt{+1} + m\sqrt{+1}$ and $m\sqrt{+1} - m\sqrt{+1}$ or $2m\sqrt{+1}$ and $0\sqrt{+1}$.

³ Or even this may be said: The zero area of a line has meaning in just so far as the line's division implies some functional relation, such as that of the sides of a rectangle, between the resulting parts or, arithmetically, as its recognized composition implies multiplication, that is, the treatment of the parts, not merely as component parts, but also as factors. Just such an implication makes the line an area *potentially*; nor is such potentiality only a polite name for unreality.

so-called, the various figures will also serve to clarify what has been said of the nature and order of the terms of the series, of the crises that characterize the series, and especially of the necessary encroachment of the series on a field of minus areas or products.

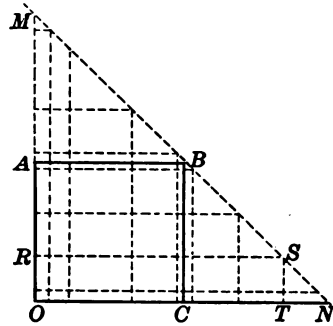


FIG. 2.

Thus, in each of the accompanying figures, $ORST$ represents some term in the series. Fig. 2 gives an indefinite number of terms, or rectangles, and shows how a rectangle, as it were, emerges out of the line ON , ON being equal to $2m$; gradually moves, in sides and area, towards $OABC$, which is m^2 ; becomes equal to, and identical with, $OABC$; and eventually, leaving $OABC$, loses itself in the line OM perpendicular to ON and also equal in length to it. In this figure, too, as also in the other figures, TN and OT are x and $2m - x$, respectively. In Figs. 3-8 the square $H I J B$, representing the difference between m^2 and $2mm - x^2$, that is, between the *actual* maximum and the general term of the series, first, in Fig. 5 is seen, after a gradation from an equivalence with this maximum, to have become zero; secondly, in Fig. 6 and thereafter, *having passed through zero*, to be a minus area; and, thirdly, in Fig. 8, to be again equivalent to, or identical with, $OABC$, the maximum. And in Figs. 6 and 7, indeed also in Fig. 8, the dimensions of the general term $ORST$, always including as these do the side or root of the minus area $H I J B$, must be in part "imaginary." RS and ST , I say, must be "imaginary" lines; they are imaginary to just the extent of their including, the one positively and the other negatively, the lines HI and IJ , since either HI or IJ is equal to $\sqrt{-H I J B}$;⁴

⁴ So do we see how a line as just a line and a line as in a given relation, as the side of an area, for example, and of an area, too, that is itself in a given relation to other areas, are of different values. As just a line HI is just HI , having some given length. As just a side of the square $H I J B$, it is indeed not merely HI , but still merely $\sqrt{H I J B}$. As the side, however, of $H I J B$ in the figures 6-8, representing a portion of the series now in mind, it is $\sqrt{-H I J B}$.

and, again, they are "imaginary," although when capable of such simple geometrical demonstration they lose much of their supposedly imaginary character.

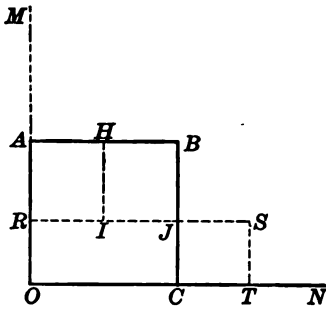


FIG. 3.

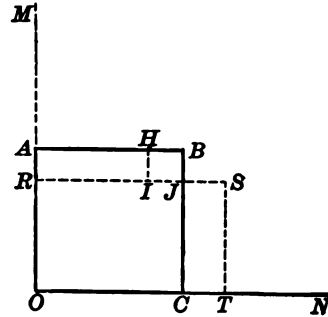


FIG. 4.

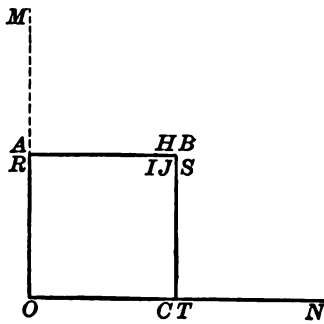


FIG. 5.

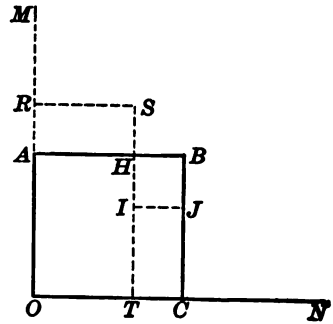


FIG. 6.

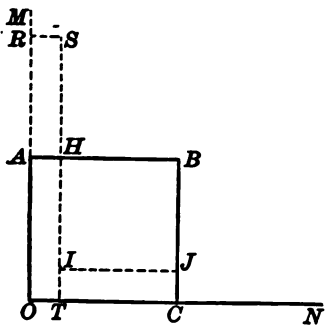


FIG. 7.

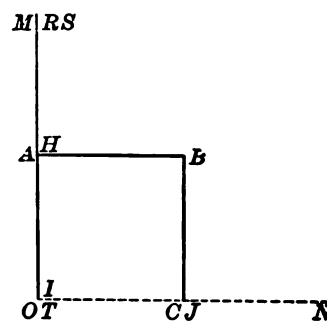


FIG. 8.

And so, though with regard to but one simple, specific case, I would suggest what is, or what may be, the meaning of $\sqrt{-1}$. Certainly it seems, on the evidence before us, that, if meanings have parts, at least in part $\sqrt{-1}$ means the application of the negative,

or, more specifically, of the idea of the negative quantity, to the sphere or field of products or areas, and, as will be recalled, this is the notion of it, subject to a promised qualification, asserted at the very beginning of the present discussion. Yet, before the important qualification is made, there are several minor suggestions, more or less closely connected with what has been said, to which brief attention is asked.

1. Not, indeed, the actual or static or positive value of OM or of the product whose factors are $m + m\sqrt{-1}$ and $m - m\sqrt{-1}$, but the *realized* value, the value *as at a certain point in the series*, is $2m^2$, and $2m^2$, it is to be specially observed, *is equal to the total field or area of the series from ON to OM .*

2. The rectangle $ORST$ as required to be greater than the maximum square $OABC$, not only is what gives rise to the imaginary quantity, but also, being statically or constructively impossible, calls for just such a generated area as is so conspicuously evident in the term OM or product $2m^2$ and as also in less degree is to be seen in every other term of the series. Such generation of area is, of course, closely connected with the meaning of the rotation that is effected by the series and that has been indicated already.

3. The values of x and $2m - x$, always having the forms $m - \sqrt{n}$ and $m + \sqrt{n}$ or $m - \sqrt{-n}$ and $m + \sqrt{-n}$, are such as to suggest a straight line, the equation for which, MO and ON being the coordinates, would be $x + y = 2m$. This equation, however, would only hide the relation of the line to the series. This line is MN (Fig. 2), which is (1) the path of the dividing point S , whose divisions on MN are proportional to those of T on ON , and (2), as the path of such proportional divisions and *as a diagonal*, a projection of the line ON on the peculiar plane or two-dimensional field of the series. MN , in fact, when regarded in the light of its place in the series, or in the geometrical representation of the series, is what I should like to call a two-dimensional line and the points in its path would be two-dimensional points or area-points, some of them, as in the part MB , being points partly in the negative and partly in the positive field or being points in what above was styled a mixed area—all of which, perhaps, is inexcusably subtle, but it seems to me to be not without some point of its own! Those who still prefer the equation $x + y = 2m$, may fall back upon that!

But, finally, the promised qualification, in effect only a recognition of the limited view afforded by just one simple case, is that the notion of $\sqrt{-1}$ here asserted, like any other notion, can be only partially or relatively true. Inasmuch, however, as the relatively true is always bound to be informed with, or to have some contact with, what is really and fully true, there is always ground for gen-

eralization even from what is relative, and being a philosopher, at least by profession, I find the temptation to generalize irresistible. Perhaps, moreover, generalization is only the proper complement, at least poetically just, of qualification. Does it not quickly transform that from which it proceeds?

The notion of the product or area, so essential to the foregoing study, is certainly a wider and deeper one than its place in the distinction between a one-dimensional and a two-dimensional field, or between mere linear aggregation or addition and multiplication, would make it. Or at least this: So far as the notion of area has been used here, it is really more general, being applicable to any definite portion of an $n + 1$ -dimensional field relatively to an n -dimensional field. Indeed, in the constant association of areas with products, that must have been conspicuous in the earlier paragraphs of this paper, such a general view of areas was already implied. A cube, or any solid, is a product—the area of an area, and so on.

Now the particular problem examined above was a problem that to all intents and purposes was solved only by the evolution of a two-dimensional field out of a one-dimensional field, and the maximum, the static or so-called *actual* maximum in the case, representing nothing more nor less than the peculiar limitation of the one-dimensional field in a form relative to the particular problem, forced upon the process of the evolution, or rather upon the formal description of this process, the imaginary quantity. This quantity was negative because of the limiting maximum, and “imaginary” because the difference in the dimensions demanded a transcendence of the formal possibilities of the one-dimensional field. As to this transcendence, it was especially apparent at two, nay, really at three, places in the series,⁵ and the part of the imaginary quantity in the realization of it was also evident. Of course, specifically, the $\sqrt{-1}$ was only the unital factor of a minus product, or area, just as the primrose is said to have been to a certain person only a primrose, but as just such a factor the $\sqrt{-1}$, or the negative area, whose sides it measured, was also a bridge, real and serviceable, between the one-dimensional and the two-dimensional fields—overcoming the limitations of the former, yet serving as a means also to the realization of the latter; and bridging those fields was the very crux of the problem.

And in the specific problem treated one thing more must be remarked, though this may be only a rewording of something already said. Associated with the imaginary quantity and plainly essential

⁵ At the first term potentially already an area, though in area actually zero; at the term in which the difference between the maximum and the actual term became zero; and at the term that was $2m^2$, or $m^2 - (-m^2)$, or 0.

to its meaning and value in the series, there was the idea of movement, if not also of something very like real and effective action. There was, for example, absolutely necessary to the interpretation of such a value as $2m^2$ or as that of any term in excess of m^2 , the distinction between the formally actual and the realized value of the term. An important element, therefore, in the meaning of the imaginary quantity, appears to be, not merely the transition from one dimension to two, as already pointed out, or the formal transcendence of certain limitations, but something more distinctly dynamic than that. At risk of seeming only poetic, I would even say that, having terms with *realized* values so different from their formally actual values, the series seems to *do* something; it makes or achieves, or, as was said before, it generates area, not merely has or finds area.

But the notion of area is a wide one, and, now to generalize from the conditions of the particular problem, is not the essence of any real problem, mathematically put, but just the bridging of spheres of different dimensions, or say, more simply, of n dimensions and $n + 1$ dimensions? Is it not the realization of area for an n -dimensional field? Every n -dimensional field, however, must have its own natural maxima or minima or, more generally, its own peculiar limits, and any problem that may be formulated consistently with the structure of this field must not only encounter these limits, but also, as it is solved, must transcend them, and, mathematically, the negative quantity is often the means for the transcendence. Moreover, where there is a negative quantity there must be also an imaginary quantity of some sort and degree. In this *general* imaginary quantity, as in the $m + \sqrt{-n}$ of the problem here discussed, the relations of the n -space are seen to take their place, by a sort of projection, in the transcendent or negative sphere of the $n + 1$ space. Nor is this *general* imaginary quantity necessarily a formally impossible one, like $m + \sqrt{-n}$; it is the formally impossible result of any operation, *the only condition apparently being that the operation determining the imaginary term must be the reversal of the operation by which the generation of the new sphere beyond its peculiar limits has taken place*. Thus, again, in the special case, the generated area was one of rectangles or products; the imaginary quantity was a side or root or factor.

* Otherwise put, the typical problem involves a functional treatment of some given field or structure, such as, for a very simple example, the even or the proportional division of a line. Functions, however, are always more general than the fields or structures within which they are applied. And so, as they are developed, they always require transcendence of the formal possibilities of these fields, that is, a change in the number of dimensions. The infinite series implies such a change or such transcendence and, as here shown, the imaginary quantity is almost an open expression of it.

The line l , too, recalled from above, affords an illustration, with which I may conclude, of the very general idea here in mind, for the notion of dimensions must also be capable of very wide generalization. Although merely as regards direction the straight line is in a one-dimensional field, yet this very thing, the direction or straightness, relatively to the *defined* length, constitutes a second dimension, the given defined length being a first dimension, and the problem of division, calling as it did for a transcendence of this first dimension, could be solved only by the use of the negative quantity, which at once involved the imaginaries, $-s$ and $l - (-s)$, that plainly were parts, not by composition or inclusion, but by the reverse operation of exclusion.

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DISCUSSION

THE PROBLEM OF OBJECTIVITY

THE task which contemporary realism regards as its special mission is to protect the objects of the physical world against the encroachments of consciousness. Anxious to avoid the error of the older realism, it has repeatedly disavowed all subjectivistic proclivities and asserted that consciousness is merely a relation among the objects and qualities which it knows. Qualities or "contents" which earlier realism regarded as purely mental are now transferred to the other side of the line and take their place alongside of the "primary qualities" as constituent members of the "objective" world.

While this spoliation of consciousness is going on, the onlooker naturally attempts to forecast the final result. So far as the data enable him to determine, there can be but one issue to the process. If the taint of subjectivism is to be completely eliminated, all contents whatsoever must be stripped away. So long as any content is left, whether it be much or little, earlier realism finds a sanction for its assumption that perceived qualities can be constituted by consciousness, and the innovations of its successor become essentially matters of detail.

If, however, we remove all contents as indicated, a situation is created which appears to involve serious difficulties. All diversity being lodged in the object, consciousness necessarily becomes qualitatively identical in all its manifestations. There can be no different forms of consciousness, but only consciousness of different objects. Having approximated the vanishing-point of abstraction, consciousness is reduced to a single dimension, that of colorless or bare
 awareness

This simplicity of character renders consciousness peculiarly amenable to inference by deduction. Since awareness is absolutely transparent, so to speak, like the axioms of geometry, we are in a position to affirm that its sole relation to its object is such as its name implies, viz., that of awareness. And this deduction constitutes the basis of at least two criticisms which seem to be damaging to realism. The first is that if awareness is a detachable element in some situations, as is conceded to be the case, it must be such in all. Since the nature of awareness forbids us to say that it can ever constitute its own object—awareness of awareness being the single possible exception—we are involved in the seeming absurdity of asserting that there can be objects such as emotions without awareness. The “can be” means in this case that emotions without awareness must be regarded as a significant conception, the existence or non-existence of such emotions being a purely empirical question, like that of water on the surface of the moon. The second criticism is that we seemed compelled either to assert the same validity for all our perceptions, no matter how divergent or contradictory they may be, or to introduce anew that distinction between subjective and objective which proved destructive to the older realism.

With the merits or demerits of these criticisms we have at present no immediate concern. The sole purpose of this paper is to consider the way in which they are met by Professor Montague in his interesting article in a comparatively recent issue of this JOURNAL.¹ That realism itself has lent some plausibility to these criticisms seems to be granted by Professor Montague, but he denies that they are in any sense final. Upon closer inspection the general difficulty will be found, as he thinks, to yield to homeopathic treatment. The remedy for the difficulties incurred by realism is more realism. In order to complete the task which realism has set itself, it is not sufficient merely to transfer all the contents of consciousness to the objective world, but consciousness itself must be so transferred. The real mistake lies in the recognition that the distinction between subjective and objective is in itself and at bottom a valid distinction. And so he reaches the *ne plus ultra* of realism in the doctrine that consciousness is “a relation existing in a material nature along with other relations and, like them, describable ultimately in terms of the basic relations of space and time” (p. 377).

As a matter of convenience we may vary somewhat the order of treatment adopted by Professor Montague and take up first his view as to the general nature of what we commonly call reality. Physical objects are held to consist of energies, both inflowing and outgoing, each of these energies being correlated with some specific quality.

¹ “Contemporary Realism and the Problems of Perception,” Vol. IV., p. 374.

These energies are either kinetic or potential in character. Moreover, those facts which are usually supposed to be peculiarly subjective and unique, as compared with physical reality, are likewise forms of qualified energy. "The passing of stimulus [a form of kinetic energy plus correlated specific *quale*] into sensation now appears as the production of the qualified energy of a sensation from the no less qualified energy of a nerve current." It is assumed "that when an externally observable current of kinetic energy in an afferent nerve fiber passes or seems to pass into a sensation, what really happens is the transformation of kinetic energy of motion into an equivalent potential energy of stress at the point in which the kinetic energy is redirected, viz., the move center" (p. 379).

The bearing of this view upon the first of the two general criticisms under discussion is as follows: If sensation (and ultimately the whole of consciousness) is reducible to a form of energy, all facts whatsoever necessarily group themselves upon one common level. All are forms of energy, and by consequence all are objective in precisely the same sense. "If consciousness is itself a purely objective and natural relation, the dependence of other facts upon it will not confer upon these latter any peculiar status, nor make them any less objective than if they lacked this dependence. The weight of a body depends upon the relation of that body to some other body, yet, notwithstanding such dependence, weight is as objective as inertia or figure and altogether on the same level as these seemingly more intrinsic qualities" (p. 377).

If consciousness itself is objective, then the first objection, which springs from the dependence of emotion upon awareness, unquestionably disappears. It is not evident, however, that the transference of consciousness to the category of objectivity can be accomplished so readily as might seem to be the case. According to Professor Montague, sensation is merely a certain form of qualified energy, or energy with a correlate quality. Before the sensation occurs the quality is correlated with kinetic energy. What is it that takes the place of this kinetic energy when we reach sensation? To refer the inquirer to potential energy is not to make a final disposition of him, for the reason that quality plus a form of potential energy can be regarded as equivalent to sensation only on condition that the potential energy be found identical with some element actually present in the sensation. Unless it is thus present we can not affirm that sensation is qualified energy. But what can we find in the sensation, besides the quality, with which the potential energy may be identified? Analysis seems able to discover but one element besides the quality, viz., our old friend, abstract awareness.

This result becomes significant the moment we inquire whether the quality revealed in sensation can exist independently of this awareness. If it can never exist independently, we are plainly on the road to Berkeleianism rather than that of panobjectivism. If, however, it can exist independently in any given case, the awareness is so far forth a detachable element. Moreover, the given case then shows conclusively that awareness is in no way constitutive of its object. This, however, is precisely the situation which was supposed to warrant the inference as to emotions without awareness, the situation which Professor Montague's specific form of realism was supposed to avoid. Whether this inference is really warranted or not, Professor Montague's argument seems, on this alternative, to impair its validity in no appreciable respect.

If we carry the argument one step farther, we find that the distinction between quality and awareness is not merely a distinction for the onlooking psychologist, but that the implications of this particular theory compel us to postulate its presence within every experience, however simple, as an element of the whole. According to Professor Montague, the "subject-object polarity so characteristic of the more advanced types of cognition" is something that gets itself made as a result of the fact that different sensations or forms of potential energy affect each other in a certain way. "All these centers of stress [*i. e.*, the various sensations] form an interconnected system each member of which inhibits or intensifies or in some way modifies all the others. In such a system there would naturally exist at each moment some one point at which the stress resulting from the intersecting energies which are proceeding from the various sensory centers was greater than any one of these energies. Such a point would constitute the ego-center of the perceptual field" (p. 380).

Here, again, Professor Montague speaks in terms of energy rather than of sensation. His procedure suggests a confusion between energy as identical with sensation, or some part of sensation, and energy as correlated with, or productive of, sensation. It is analogous to the confusion of the materialist between the propositions that mind is motion and that mind is the product of motion. If we are permitted to insist that the energy (plus quality) is sensation, the process just described must be statable in terms of sensation. This is particularly true since potential energy is something with the nature of which we are intimately acquainted only when it appears in sensation. To adopt the other procedure is to explain the known in terms of the unknown, or to reduce a familiar fact to a hazy and dubious construct. Now if our previous conclusion be correct, a sensation is composed of quality plus awareness. And since it would hardly be

maintained that the qualities are the components which operate as intersecting stresses, we seem compelled to assume that the ego-center is constituted as the result of the stress among various awarenesses. In other words, we are apparently confronted with a new form of the old problem how from various units or fragments to constitute the concrete unity of our conscious life. The experiential element that was cast out at the start has to be recovered in ways that are dark and vain. Hume, who, likewise, in his own peculiar way, made consciousness objective, invoked to no avail the magic of association to undo his ruthless work; and Kant, for the same reason, was obliged to seek a remedy beyond the uttermost bounds of space and time. If in the present instance we substitute sensation for potential energy, as we are told to do, a sudden transition from physics to mythology seems unavoidable. All our established conclusions as to the unity of consciousness are overthrown, and mind-stuffism is no longer *ein überwundener Standpunkt*.

We may now turn to the second general topic discussed by Professor Montague, viz., that of the relation between perceived quality and physical quality. Are we obliged to say that every quality belongs as perceived to the physical object, no matter how incompatible it may seem to be with the qualities revealed in other perceptions? This question presents two aspects. If it means to ask whether the presence or absence of an observer is a matter of indifference, the answer must be negative. "It is probable, for example, that the specific quality correlated with the ether wave-length that produces perceptual red, when the optic nerve current which it arouses is transformed into potential energy in the visual center, is itself something as different from red as the odor of musk" (p. 382).

But if, on the other hand, the point of the question be taken to lie in the comparison of the qualities with each other, the answer must be affirmative. The quality perceived is not to be contrasted with some other quality as appearance is contrasted with reality. The reason lies in the nature of the object. An object with its qualities is nothing but a mass or system of energies flowing in from other points. "A particular object, in other words, is nothing more nor less than the whole universe as it happens to focus itself or project itself on some particular point. Consequently our own perceptual activity when directed to an object contributes to the nature of that object just as truly, though, of course, not so largely, as the sun's shining upon it. The attributes which we ascribe to it do forthwith belong to it" (p. 382).

The difference between reality and appearance, as is further explained, is simply the difference between attributes which fit into a certain system and those which do not. As judged by this test,

some attributes are found to be *compossible* while others are not. "These *compossible* appearances are segregated from the general mass of appearance and contrasted with them as 'reality.' A mere appearance is simply a reality that has failed to harmonize with other realities, while, conversely, a reality is nothing but an appearance that has stood the test of our comparisons with other appearances. A thing as it is 'in itself' is a thing as it is for the whole universe of things collectively. It is the resultant of its appearances from all possible view-points" (p. 383).

In view of these considerations we are invited to take comfort in the reflection that our perceptual knowledge is "good and *real* so far as it goes." Caution, however, would suggest that acceptance of the invitation be postponed until we have ascertained how far this knowledge is likely to go. If a given object is "in itself" simply the resultant of its appearances from all possible view-points, then the judgment that it is "really" square signifies that squareness is the particular appearance which harmonizes or organizes all the divergent perceptions as to its shape. Since the other shapes are equally real, the preeminence of squareness simply indicates its "compossibility" with other shapes whereby we are enabled to fit objects together into a system.

Since, however, the apparent shapes of every object are literally innumerable, there seems to be no particular reason why different standards should not be employed by different persons or by the same person at different times. Why is it that we find so much agreement in practise as to the "real shape" of objects? Along the present lines we can reach but one conclusion. James would seem to have said the last word on the subject when he shows that the basis for our selection of the standard or real shape is practical convenience. The standard appearance is the one which is presented when vision reaches the highest degree of clearness and distinctness. "No other point of view offers so many esthetic and practical advantages. Here we believe we see the object as it *is*; elsewhere only as it seems."²

If this be the case, however, what is the precise meaning of the statement that "what the thing appears to me to be, in the full light of all my other knowledge, that it really is throughout the length and breadth of the world as known by me"? (p. 383). If it be true that the knowledge in question is simply a knowledge of practical requirements, as determined by the peculiarities of the *genus homo*, then the "resultant of its appearances from all possible view-points" tells me no more about the object as it is "in itself" than does any of its isolated appearances. And so far as knowing goes, apart from

² "Psychology," Vol. II., p. 239.

mere convenience, we seem to be forced back to the view that the nature of the object is indeterminate, that it can be all things to all men, that its appearance is its reality, and that truth and error is a meaningless distinction.

This conclusion may be reinforced by the consideration of another difficulty, or apparent difficulty, viz., as to the meaning of "possible view-points." If from a given view-point the object appears to an observer to have a certain quality, what happens to the object when the observer leaves his post and thereby reduces the latter to a mere "possible view-point"? Does nothing happen with respect to the qualities observed, *i. e.*, do the observers function merely as so many photographic plates to record what they find? Or is the presence of the observers a factor in determining the nature of the qualities which they observe?

Whichever alternative we adopt, we are at fault. If the presence of the observers is irrelevant to the possession by the object of the various qualities which it is seen to have, we seem to come into conflict with the argument according to which observed qualities are real precisely because the observers, since they constitute a part of the object's environment, contribute to the nature of that object. Moreover, the adoption of this alternative would simply emphasize our previous conclusion that the appearance of an object is its reality and that error is an impossibility. If, however, we resort to the second alternative and say that the multitude of qualities which this cloud of witnesses attests are in some way constituted by these witnesses themselves, then obviously the "appearance from all possible view-points" is a meaningless *x*, so long as the view-points remain mere possibilities. And however true our perceptual knowledge may be, it is true only while the perception endures.

In brief, we seem again compelled to choose between that interpretation which formed the basis for the original criticism and a Berkeleian metaphysics. The first of the alternatives just mentioned appears to be the one which Professor Montague's realism is intended to avoid. The second, however, involves an essential repetition of the performances of the earlier realism. We start with a world existing independently of experience, a world composed of energies and correlated qualities. Thence we pass to the world revealed in consciousness, a world translated for us into terms of potential energy. Once inside this latter world, however, we find that the entrance, like some gates to the platforms of elevated trains, admits only incoming travelers. All our categories, as we now find, are taken from this world of our perceptions. Or, to put it differently, the distinction between kinetic energy and potential energy is now found to be a distinction that falls wholly within the potential, *i. e.*,

kinetic as well as potential energy becomes known to us only when the stage of potential energy has been reached. That kinetic energy exists when this stage is not realized, or that its qualities are ascertainable by us, is an assumption for which the situation furnishes no warrant.

It is in no spirit of mere controversy, therefore, that I profess my inability to appreciate the cogency of Professor Montague's argument with respect to the criticisms against which it is directed. Whether these criticisms themselves possess any greater cogency is a different matter. Professor Montague may be quite right in his belief that the objections which they raise are not insuperable. At all events, his frank recognition that the time for constructive work has come may be taken as an indication that contemporary realism will give more attention to problems of this general sort than has hitherto been the case.

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REVIEWS AND ABSTRACTS OF LITERATURE

American Philosophy. The Early Schools. I. WOODBRIDGE RILEY. New York: Dodd, Mead & Co. Pp. ix + 584.

This is by far the most complete work which has yet appeared on the early history of philosophy in America. It is, in fact, the only one which attempts to treat the subject with thoroughness and in all its details. There is some literature, in the form of articles, on the general subject of philosophy in America or on its earlier representatives; there are chapters in histories of philosophy and of literature; some work on the earlier period has been presented in monograph form; and there is one small volume in French which reviews our philosophical development from the Colonial period to the present; but, on the whole, the field has been neglected by students of philosophy, so that this volume, although not quite a pioneer in the field, is the first to take full possession. The portion completely occupied is that which falls between 1620 and 1820. It is to be hoped that the volumes on the later periods will soon follow. Whatever value such study may have for philosophy itself, its historical interest can not be in doubt and its contribution to the better understanding of the national character should be considerable.

The author aims not merely at an account of men and schools, he wishes to show an organic relation among their doctrines and to indicate their relation to the larger aspects of national life. He meets the charge that America has slavishly borrowed her philosophies with the reply that she has exercised selection and has modified what she has borrowed to meet the demands of her own situation.

One of the earlier chapters traces a parallel between political and

philosophical developments. On the one hand, there is the change from the monarchical view of the time of the Stuarts, through limited monarchy, to democracy; and on the other, from the Puritan view of God as the absolute ruler of the universe, through deism, to a pantheistic view as embodied in transcendentalism. This parallelism, he holds, is not simply a coincidence, and he offers some evidence for his opinion—the general growth of naturalism and rationalism, for one thing. On the philosophical side he finds the beginning of this development in John Wise's "*Vindication of the Government of the New England Churches*," wherein theological arguments are supplemented by those based upon reason and natural rights. The chapter here under discussion is brief and suggests rather than proves a connection between the two developments.

After the introductory chapters, which include a historical survey of the whole course of development, the book falls into five parts, each dealing with a separate philosophical movement, as follows: "First, Puritanism as it sprang from English sources; second, deism, or free-thinking, as it began in reaction against a narrow Calvinism and ended with the revolutionary French skepticism; third, idealism as it arose spontaneously with Jonathan Edwards and was fostered by the Irish Bishop Berkeley, through his adherent Samuel Johnson; fourth, Anglo-French materialism, as it came over with Joseph Priestley and developed in Philadelphia and the South; fifth, realism, or the philosophy of common sense as it was imported directly from Scotland, and came to dominate the country until the advent of the German transcendentalism."

Book I., on Puritanism, contains a brief exposition of the philosophical principles of Puritanism and a presentation of anti-Puritanism as it was formulated by Ethan Allen in his "*Oracles of Reason*." The author protests against the tendency to emphasize the more picturesque and repellent features of Puritanism, and presents the philosophical tenets of its Calvinism as follows: in its ontology it teaches that the Deity is outside the framework of the universe, interferes from time to time according to an absolute and arbitrary will, works through inscrutable decrees and foreordains all things; in its cosmology it holds that the world is under the divine displeasure, that it conceals rather than reveals its creator, that it is created from nothing and that evil is a permissive act of God; in its epistemology, revelation rather than reason is regarded as the source of true knowledge, and God's will and nature are believed to be hidden in a mystery which man has no natural capacity to penetrate; in its theory of personality it teaches that God's essence is alien from that of man, that grace alone makes progress possible, that man's liberty works only within the limits of his foreordained nature, that the last dictate of the understanding determines the will, and yet that the inclinations are included within the will.

The reaction represented by Allen contends for reason as against revelation and inspiration, unvarying natural laws as against intervention, opposes the doctrines of original sin and imputation, and belittles

the dogma of predestination. Allen himself presents "an astonishing metaphysical scheme for one with scanty education and scantier authorities"; he reaches "an almost Spinozistic description of the universe," but there remain many inconsistent elements in his system and he is described as half deist, half pantheist. Dr. Riley has rendered an important service in giving to Allen his place in this development.

Proceeding from this point, he next considers idealism before showing the complete development of the deistic movement. Idealism in America in the eighteenth century can hardly be described as a movement since it is represented by only two men, Samuel Johnson and Jonathan Edwards. A tendency in that direction in the College of New Jersey came to an untimely end at the hand of John Witherspoon, and there seems to be no evidence of even a tendency elsewhere, with the exception of that at Yale College in the persons of the two men who were its chief exponents in this country.

The earlier of these was Samuel Johnson, the friend and disciple of Berkeley. His doctrines are fully and clearly presented, and further historical interest is added to the chapter by the inclusion of what remains of the correspondence between Berkeley and Johnson, as well as of extracts from Johnson's correspondence with Cadwallader Colden and from some of his sermons. A good proportion of this material is now published for the first time. Dr. Riley finds Johnson's most important contribution to philosophy in his reconciliation of Berkeley's immaterialism with Malebranche's vision of all things in God, and in the similar reconciliation of the doctrines of causality held by those philosophers.

In his chapter on Jonathan Edwards, Dr. Riley aligns himself with those who contend for Edwards's independence in the development of his idealistic theory, and he presents the evidence in brief and concise form. Aside from the exposition of Edwards's views, the thing of chief interest in the chapter is the attempt to show that the idealistic doctrines were the outgrowth of the mysticism which abounds in the philosopher's works and that the pantheistic tendencies, which were held in check by Calvinistic beliefs, were also organically related to this mysticism. Space does not permit a review of the arguments and the evidence, but the author seems to have made out a very good case. It is unfortunate that some of the Edwards literature has not been made accessible.

Following the discussion of idealism, we are taken back to the consideration of deism. Although this was not primarily a philosophical movement any more than was Puritanism, the complete understanding of the philosophical history of America demands that it should be included. The author uses the term, deism, very broadly. Rationalism, optimism, and opposition to Calvinism seem to be the characteristics which at first set it off from Puritanism. Such a Puritan as Cotton Mather presents both rationalistic and optimistic principles in his writings and is, therefore, selected as one of the forerunners of deism. The earliest representatives of the movement are to be found in the colleges and the more academic circles. At Harvard, Mather, Charles

Chauncy, Edward Holyoke, Andrew Eliot, Channing, and others entertained views which lead Dr. Riley to include them in the deistic movement, though most of them would doubtless be horrified to find into what company they have fallen. At Yale, Ezra Stiles had some sympathy for optimism and rationalism, but wished to fight English deism with its own weapon, reason. Of those connected with King's College, William Livingston and Samuel Johnson are related to the liberalizing movement. In the College of New Jersey these tendencies were strongly opposed, while in Philadelphia William Smith and his sponsor, Franklin, though going much farther than the New Englanders on the deistic road, were by no means extreme. Jefferson was less conservative, and in Thomas Paine the movement reached its height. Its popular influence was at its maximum in the early years of the nineteenth century. Volney, Elihu Palmer, and others carried on the propaganda, but a reaction had begun which soon became general, and deism rapidly declined.

The whole discussion of the deistic movement is exceedingly interesting and is an important contribution. The most interesting figures in its history are, of course, Franklin and Jefferson. The author presents a consistent and readable account of each.

In the section devoted to materialism, Cadwallader Colden is given the first place and the greatest amount of attention; he deserves it rather from the variety of his interests and the activity of his speculative faculties than from the completeness or consistency of his philosophy. With his materialistic doctrines, he is shown to have entertained tendencies toward pantheism as well as dualistic beliefs and a belief in the free-will doctrine; asserting the dynamic nature of matter, he still believed a prime mover necessary, and so on. In spite of his inconsistencies he is one of the most interesting figures in the whole book, and Dr. Riley's exposition is based principally upon material which has not before been exploited, most of it being unpublished. The next in order, Joseph Buchanan, of Kentucky, was somewhat more consistent. He aimed at a materialistic monism, held an epiphenomenalistic view of mind and was a determinist. Erasmus Darwin and Hartley were his philosophical ancestors. Joseph Priestley's views and their reception are briefly discussed and a short chapter is devoted to the dogmatic and belligerent Thomas Cooper, of South Carolina, materialist and determinist and anticipator of positivism (p. 419). The chapter on Benjamin Rush shows him as an utterly shameless eclectic. He shares with Buchanan the credit of making many interesting observations looking toward physiological psychology, and he makes many interesting suggestions in other parts of the psychological field, but these do not prove to be original. Among the half-dozen names in the chapter on "Minor Materialists," that of Sheldon Clark, of Connecticut, is the most important, but he, too, fails to present a consistent system. Materialism never became a popular philosophy, and it is surprising to find that even a scant dozen can be marshaled as its advocates. The next movement, on the other hand, is the one of all those discussed that obtained a popular verdict. Realism

from Witherspoon, through Stanhope Smith and Samuel Miller, to Beasley, and including Nisbet, Law, and Ogilvie, is the subject of Book V., which completes the volume. Including, as the author does, only the beginning of the nineteenth century, a good part of the literature of realism had to be omitted. This doubtless accounts for the comparative brevity with which the movement is presented.

Most readers will probably be surprised at the size of a volume which devotes itself exclusively to the early period. It is explained by the fact that we have before us the history of philosophical opinions rather than of philosophies; there was plenty of intellectual curiosity and no lack of speculation; and Dr. Riley has included whatever seems to throw light on the development of thought along philosophic lines. The fact that half the volume is devoted to deism and materialism might also be misleading at first. Deism was not primarily a philosophical movement and materialism was not general; but deism did, of course, have very important philosophical bearings, and the various representatives of materialism varied so much in their views and their ways of presenting them that the full treatment of them is justifiable. It is difficult, however, to clear the author of the charge of having cast his net perhaps over-widely in his search for deists and deism. All this, however, points to the merit of thoroughness. He will let no one escape. Dr. Riley has not deprived candidates for the doctorate of all opportunities for original work in the field; perhaps he has only multiplied them, but he has certainly worked the field very thoroughly himself. He has unearthed a quantity of new literature and he has produced a most excellent history. He can not expect entire agreement on minor points, but the verdict must be that he has done an exceedingly careful, thorough, and valuable piece of work.

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La fonction du sommeil. E. CLAPARÈDE. *Rivista di Scienza*, Vol. II., No. 3, 1907. Pp. 20.

In this article Claparède gives a brief account of his recently published theory of sleep and enumerates his criticisms of other theories. Previous theories may be classified into (a) circulatory, (b) neurodynamic, and (c) chemical, and the author takes up for consideration different theories in each of these general classes.

The circulatory theories are of two kinds: (1) those which explain the occurrence as due to cerebral anemia, and (2) those which report the occurrence of cerebral hyperemia. There are four types of the neurodynamic theory: (1) sleep is due to an interruption or decrease in the conductivity of the neurones; (2) it is not only due to a decrease in the conductivity, but there is a retraction of the nerve elements so that the different neurones are more widely separated than during the waking life; (3) there is in sleep an inhibition of the cerebral, and consequently of the intellectual, activity; and (4) sleep is due to the lack of excitation. The fourth type of this group is closely allied to the first. The chemical hypotheses that have been advanced to explain the conditions of sleep are

very varied. The principal ones of this class are: (1) that it is due to a periodic asphyxia of the cerebral substance, (2) that it is due to a decrease in the amount of food material or oxygen, (3) that there is an intoxication of the central nervous system by a periodic accumulation of waste products in the blood, and (4) that it is due to the specific action of a glandular (internal) secretion such as that from the hypophysis cerebri.

The author believes that none of these theories accounts for the condition, they do not explain it as a function, do not say whether it is active or passive and do not answer the "Why?". The circulatory and neurodynamic theories, in addition to having questionable bases of facts, do not show that the phenomena invoked to explain the condition are the cause rather than the effect. The chemical theories rest on the sophism, the author states, that when certain substances are introduced into the blood they produce sleep; it is true that they produce *a* sleep, but it is not certain that they produce *normal* sleep. These theories do not account for the cycle of waking and sleeping, nor do they explain in what manner and why sleep restores the organism. If weariness were the cause of sleep, sleep should always follow exertion and fatigue, but this is not the case. One can sleep without being weary and, on the other hand, one may be considerably wearied without being able to sleep, and at times there may be real insomnia. The influence of obscurity in producing sleep is not explained by any of the theories of the three groups mentioned above. The curve of the depth of sleep, determined by a number of investigators, is taken by Claparède as an indication that the sleep is not due to the action of some toxin or to the lack of food or oxygen, but is explained as having the character of the curve of work and fatigue. To the author the curve means that something is being tired, as if from use; "it is as if sleep were an activity which decreases little by little and that waking occurs after one is fatigued by sleeping"; which criticism and suggestion appear to the reviewer not only a wild guessing, but even mere word juggling. None of the theories accounts for the lack of sleep in some insane and none explains the morbid sleepiness in some hysterical states.

After clearing the ground the author begins to construct his own theory, which is called biological. He presents certain questions that appear to him should be answered by a good theory of sleep, and his answers constitute the biological theory which he has been developing during the past three or four years.

Is sleep an accident or a function? Nearly all the other theories consider sleep to be an accident, as a something that follows a condition of toxemia or asphyxia or as a cessation of activity, and at times as something almost abnormal. According to Claparède, however, sleep is not only the consequence or the reverse of waking, but is useful as such to the organism and is, therefore, a function. As sleep precedes exhaustion it prevents the latter, and thus is to be considered a function of defense of the body.

Is this function passive or active? In answering this question the

author compares sleep with the process of micturition, in which the expulsion of urine is not due to the opening of the sphincter because of the great pressure in the bladder, but is brought about long before the tone of the sphincter is overcome by the hydrostatic pressure. In a similar way, he says, sleep begins before the blood is charged with toxic substances sufficient to produce the condition. This function is, therefore, an active one, a biological instinct which has for its end that of arresting the functional activity of part of the body, not that the body may recover from the effects of intoxication, but that the body may not become intoxicated or poisoned.

What, then, is the mechanism of this reflex? Sleep can be produced by feelings of fatigue, by darkness, by lying down, by the sight of the place where one is accustomed to sleep, by the idea of sleep, etc., and it is probable that for normal sleep the action of these stimuli is increased by a certain amount of fatigue, and perhaps by a certain amount of blood change in the nature of poison or lack of food or oxygen. Whether or not there are certain cerebral areas or special nervous centers most involved in sleep, we do not know. Psychologically, sleep is a condition of disinterest for the presented situation or, in other words, it is a condition of total distraction. In sleep there is not an adaptation to what is going on, and "sleep consists in an inhibition of the reactivity." It is not sensibility that is enfeebled, but the ability to react. In sleep the inertia, the suppression of muscular work, prevents the too great use of bodily material and the production of deleterious products; but sleep is not solely a period of restoration after the diminishing muscular or bodily ability, for it is well known that repose—bodily immobility—does not restore as does sleep. The great restorative action of sleep is explained as due to a supposed reservation of energy (ordinarily used in nervous functions) for the needs of restoration, reassimilation, and nutrition of the organism.

This is the biological explanation of sleep. Sleep is not only a negative condition, it is not only for the purpose of getting rid of waste products, but is an active condition that enables the body to continue its work. In this sense the author is probably right. The explanation of the recuperative power of sleep is more than doubtful, for at present we know nothing of energy use by the cerebrum, and the explanation of transfer of cerebral energy to other, the vegetative, organs is nothing more than a guess. To the reviewer it appears probable that too much emphasis is placed on the value of sleep to the vegetative systems, and although one of the mistakes of the other hypotheses is the too exclusive consideration of the nervous system, it is likely that the greatest influence of sleep is on the nerve centers. The incessant activity of the nervous system during waking is followed by a period of comparative quiet during sleep, whereas we know that certain other systems of the body function just as well during the period of sleep. When we are awake the nervous system is used for the regulation and the activating of all the bodily mechanisms, and the vegetative systems, so far as we are aware,

are not so incessantly working. It is the nervous system that needs most rest, but it does not need all. In this connection, it would be interesting to compare in different kinds of animals the amount of sleep with the nervous development, and to determine any relation between the development and use of the higher nerve centers. Because of his artificial conditions of life man would need to be excluded from such a comparison or the lives of some of the domestic animals might be made to approach that of man. We also need more observations, such as were made by Patrick and Gilbert, on the amount of sleep needed for recovery after long periods of waking.

The biological theory of Claparède is an advance on the ones which he has criticized. The new theory will be elaborated and possibly changed to some extent, but even in its present condition it helps more than the older ones to a better understanding of the varied phenomena known as sleep.

SHEPHERD IVORY FRANZ.

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Das ästhetische Symbol. ROBERT M. WERNAER. *Zeitschrift für Philosophie und philosophische Kritik*, Band 130, Heft 1. April, 1907. Pp. 31.

The writer opens this interesting paper with the statement that an exhaustive treatment of the symbol is an *Ästhetik im Kleinen*. While expressly disavowing the writing of such an esthetic, he has nevertheless given us a suggestive glance into that new *Gefühls-ästhetik* which is rapidly breaking away from the older intellectualistic presuppositions. The symbol has always been the strong point of intellectualistic esthetics, for, despite the fact that we actually use the term symbolism to cover numerous *felt* meanings which can not be reduced to terms of the understanding, it is in general, as Wernaer says, only the artist and the artistically schooled that are conscious of any other than the intellectual symbol. Some of these felt meanings Wernaer has been able to isolate, and has made good his claim for the existence of a purely "esthetic symbol which is brought into being through feeling, and in which picture and affective content fuse into an unanalyzable unity." Thus in Millet's "Angelus," which is his chief illustration, we have, in addition to the picture for sense and the primary meaning which arises through the "feeling into" the picture of particular emotions, subjective and individual, *another* felt meaning, more objective and typical, "a meaning incorporated in the picture itself, and yet one which lies back of the particular experiences, and which is felt only as *Stimmung*—that this man and this woman express the relation of laboring humanity to God." In this case the secondary meaning is what we describe as religious, but it is only accidentally so. Symbolic art expresses many of the more general feelings which arise in the progress of the race.

With well-chosen illustrations from literature and art, he shows that

this symbol of the "second intention" is to be clearly distinguished from the intellectual symbol, which depends for its existence merely upon the fact that the ideal content is connected with the sensuous picture by some identity. In the affective symbol there can be no question of such a point of comparison, in Vischer's sense, for image and affective content are fused into one esthetic unity. Nor is it to be explained as arising out of a sense of "discrepancy" (in Hegel's sense) between picture and content, sense and thought, although there are some symbols of this logical-esthetic character. Neither of these logical explanations applies. The symbol in this case is purely psychological, and is psychologically, not logically, conditioned.

This analysis, with its negative conclusions, is well worked out, but such suggestions as Wernaer offers in the direction of the fuller characterization of these more objective moods and sentiments, with their purely affective meaning—as well as towards their explanation—are vague and disappointing. It is to be hoped that the present paper is to be but the prelude to more positive construction, and that in the working out of the suggestions already given the writer may be led to a consideration of the concepts of "affective generalization" and "affective logic," which have already proved useful in connection with the problem of esthetic symbolism, and to which some of his own analyses and descriptions already point.

WILBUR URBAN.

TRINITY COLLEGE.

JOURNALS AND NEW BOOKS

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Bd. 46, Heft 4. *Zur Theorie der Gefühlstone der Farbenempfindungen* (pp. 241-274): RICH. MÜLLER-FREIENFELS. — Two assumptions are made: that the Hering theory of color vision is true and that feeling tone is dependent upon the adequate functioning of the nervous mechanism. So far as color sensations themselves are agreeable, it is held that actual processes in the retina or cortex are directly responsible. The agreeableness of bright objects is thus traced to the activity of the white-black process. Saturation is treated as an exception, and agreeable only as meeting a desire for strong contrast or some other intellectual requirement. Further, it is claimed that the appreciation of rich colors is primitive and is being outgrown. Pleasing combinations, whether of complementaries or not, give rise to a balance of activities of different processes, or further the antagonistic processes in one substance. Small intervals do not form a combination, but a single impression. The brightest (ruddy) part of the spectrum is normally pleasing, but here, and always, associative factors and acquired prejudices must be considered. *Die angeblich falsche Wissenstheorie der Psychologie. Ein Protest* (pp. 275-287): RICHARD HERBERTZ. — Three contentions of H. A. Prichard in an article in *Mind*, January, 1907, are examined

and criticized in turn. (1) "They (the psychologists) take their stand on a false theory of knowledge; (2) they ignore the unique character of the subject-object relation involved in knowledge; and (3) the desire for explanation which prompts their treatment is mistaken." It is argued that these contentions themselves rest upon a particular theory of knowledge; that the objects of consciousness (presented objects) are improperly identified with objects of knowledge proper, and these in turn with real objects. Psychology has a proper subject-matter, distinct from that of the other sciences and independent of any theory of knowledge, and not involving any particular doctrine of the relation of subject and object. *Literaturbericht*.

Aristoteles Metaphysik. Ins Deutsche über Tragen von Adolf Lasson. Jena: Eugen Diederichs. 1907. Pp. xiii + 319. 6 M.

Boirac, Émile. *La psychologie inconnue.* Introduction et contribution à l'étude expérimentale des sciences psychiques. Paris: Felix Alcan. 1908. Pp. 342. 5 fr.

Davenport, Herbert Joseph. *Value and Distribution.* Chicago: The University of Chicago Press. 1908. Pp. xi + 582. \$3.72 net.

Elkus, Savilla Alice. *The Concept of Control.* *The Archives of Philosophy*, No. 1; *Columbia University Contributions to Philosophy and Psychology*, Vol. XVIII., No. 1. New York: The Science Press. 1908. Pp. iv + 40. 40 cents net.

Münsterberg, Hugo. *Philosophie der Werthe.* Leipzig: J. A. Barth. 1908. Pp. viii + 486. 10 M.

Pillsbury, W. B. *Attention.* London: Swan, Sonnenschein & Co.; New York: The Macmillan Co. 1908. Pp. x + 346. \$2.75 net.

Rand, Benjamin. *Modern Classical Philosophers.* Selections illustrating modern philosophy from Bruno to Spencer. Boston and New York: Houghton, Mifflin & Co. 1908. Pp. xiii + 740. \$2.50 net.

Stettheimer, Ettie. *The Will to Believe as a Basis for the Defense of Religious Faith.* *The Archives of Philosophy*, No. 2. New York: The Science Press. 1908. Pp. iv + 97. \$1.00 net.

Tarnowsky, Pauline. *Les femmes homicides.* Paris: Felix Alcan. 1908. Pp. viii + 591, with 40 plates. 15 fr.

Washburn, Margaret Floy. *The Animal Mind.* The Animal Behavior Series. Vol. II. A text-book of comparative psychology. New York: The Macmillan Co. 1908. Pp. x + 333. \$1.60 net.

The Works of Aristotle. Translated into English under the editorship of J. A. Smith and W. D. Ross. *Part I; The Parva Naturalia*, by J. I. Beare. Oxford: The Clarendon Press. 1908. 3s. 6d.

NOTES AND NEWS

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

GENTLEMEN: In your JOURNAL of February 13 there appears a review of my first "Study in German Romanticism," in which my argument is so completely misstated that I request you to grant me space for the following correction:

The purpose of my study was not to show that "repetition of a word as a means of suspense" was "the contribution" of romanticism to the drama, but to examine the extent to which romantic emotionalism during a definitely limited historical period in German literature became (I quote from the last paragraph of my summary) "a fundamental part of the constructive conception of the modern drama."

Your reviewer quotes a number of scattered examples of repetition, to which I could have added a great many more, to show that repetition was used before German romanticism appeared, quite ignoring the fact that the first six pages of my study serve no other purpose except to show that *repetition is one of the fundamental structural elements of all forms of art*. I used repetition-of-a-word, at once a most definite, easily perceived, and—as I showed in the second part of the introduction—*fundamental* element of dramatic structure, merely as a technical means to subject the structural functions of romantic emotionalism to a more exact and fundamental test than has hitherto been done. Examples from other, non-romantic, writers, except those from Lessing and Schiller which were required for the historic-genetic reasons given in the study, would clearly have been irrelevant. *Your reviewer's criticism commits him to the assumption that I count Lessing and Schiller among the romanticists!*

I call Mr. Fletcher's attention to a review in the *Litterarische Centralblatt* of September 14, 1907, in which the subject and argument of my study are perfectly understood. Respectfully yours,

MARTIN SCHÜTZE.

UNIVERSITY OF CHICAGO,
February 21, 1908.

THE third annual meeting of the Southern Society for Philosophy and Psychology was held in Washington, D. C., on February 26-27. President Roosevelt received the members of the Department of Superintendence and of the visiting societies at the White House on Wednesday afternoon, February 26, at 2:30. At the conclusion of the reception the following program was given by the Southern Society at University Hall, George Washington University: Psychic Effects of Anesthetics, Elmer E. Jones; The Pictorial Representation of Distance, Robert M. Ogden; An Experimental Study of the Efficiency and the Development of Memory in Children (by title), J. W. Baird; A Telepathic Experiment, Haywood J. Pearce; Universal Imperatives, J. F. Messenger; A Comparison of Spinoza's "Ethics" and Spencer's "First Principles," Edward H. Griffin; Inspiration from the Point of View of Psychology, George L. Raymond;

The Teleological Judgment, Edward E. Richardson. On Thursday morning, at University Hall, Professor W. D. Furry presented a paper on "The Esthetic Experience: Its Nature and Function in Epistemology." This was followed by the address of the President of the Society, and, later, by a discussion on "The Present Status of Logical Theory," introduced by Professor J. Mark Baldwin.

THE Western Philosophical Association met, conjointly with the American Psychological Association, at the University of Chicago, December 31, 1907, and January 1, 1908. The most notable parts of its program were a symposium on meaning and a symposium on value. The former will be printed in the *Psychological Review*, and the latter in this JOURNAL. A joint session was held with the American Psychological Association on the topic "The Relation of Ethics to Philosophy and Psychology." The officers for the year 1908 are as follows: President, Professor Arthur O. Lovejoy, Washington University; Vice-president, Professor George A. Coe, Northwestern University; Secretary-treasurer, Professor John E. Boodin, University of Kansas; new members of the Executive Committee, Professor F. C. Sharp, University of Wisconsin, and Professor G. A. Tawney, University of Illinois.

THE council of the senate of the University of Cambridge has recommended that the University hold a celebration in honor of Charles Darwin in 1909. Darwin was born on February 12, 1809, and the "Origin of Species" appeared in 1859. The year 1909 will, therefore, mark the hundredth anniversary of the first and the fiftieth anniversary of the second event. The week beginning June 20 appears to be the most convenient time for the celebration.

THE seventh meeting of the International Congress of Criminal Anthropology will open at Turin on April 28, under the presidency of Professor Lombroso. Communications relating to the congress should be addressed to the Secretariate of the Congress, Istituto di Medicina Legale, Via Michelangelo, 26, Turin, Italy.

PROFESSOR MAX MEYER, of the University of Missouri, and Professor Robert M. Ogden, of the University of Tennessee, had ready for publication last fall an English translation of the work by Adolf Hildebrand, "Das Problem der Form in der bildenden Kunst," to be published by G. E. Stechert & Co., New York. While being shipped from the printers to the publisher, the whole edition was lost by the railroad in a manner unknown. The book will be reprinted as soon as possible.

PROFESSOR E. HERSHEY SNEATH, who resigned his chair at Yale University two years ago owing to ill health, has accepted an appointment as lecturer on philosophy in the graduate school. Dr. Roswell P. Angier, instructor in psychology at Yale University, has been promoted to an assistant professorship of psychology.

PROFESSOR W. RIDGEWAY, professor of archeology in the University of Cambridge, has been elected president of the Royal Anthropological Institute.

DR. WM. A. HAMMOND has been appointed Sage professor of ancient philosophy in Cornell University.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

CONSCIOUSNESS AND REALITY¹

I. NEGATIVE DEFINITION OF CONSCIOUSNESS

I HAVE found it necessary, in the service of the anatomy of experience, to take up the scalpel of analysis again, in order to disentangle another attribute from the general mass of reality. I am not ashamed to confess that my view of reality has undergone important modifications since I first tried to state it systematically. I envy those who can survey the whole universe at once and can shoot out a system of philosophy complete and finished, as Athena sprang from the head of Zeus. But with my limitations of time and mind, I have had to attack the universe piecemeal. I first became interested in the inadequacy of the universally accepted serial view of time and the havoc that the idealists had wrought with this aspect of reality on the basis of the accepted view. I next came to realize that the serial aspect was no more adequate to the space concept than to the time concept. I later awoke to the fact that the criterion of value can not be stated in terms of finite impulse and its satisfaction; and so was brought to emphasize the reality of direction as an ultimate formal attribute of reality and independent of its stuff aspect. I thus had come to the conclusion that there must be at least three non-stuff or non-energetic dimensions of reality, viz., time, space, and direction.² After a year or two of meditation on consciousness I have come to think that consciousness too must be stated as a non-stuff dimension of reality, and for this point of view I wish to give the reasons in this paper.

Until my critical interest in this problem began, I had come to think of consciousness as a relation. But I have found great difficulty in stating consciousness in relational terms. If consciousness is a relation, what sort of a relation is it? Since relations as such

¹ This paper was read before the Philosophical Club of the University of Kansas, October 12, 1907.

² In referring to these concepts in this paper, I shall presuppose the definitions given of them in my previous publications, especially my monographs, "Time and Reality," *Psychological Review* Series, No. 26, "Space and Reality," this JOURNAL, Vol. III., pp. 533 and 589, and *International Journal of Ethics*, Vol. XVII., p. 454.

can not be regarded as existing in things outside of the scope of consciousness, but are due to our conscious purposes, and since, therefore, all relations are conscious relations, shall we identify consciousness with the sum total of relations? Or shall we identify consciousness with a special group of relations, such as the relation of subjectivity, as over against the objective relations, such as our social or sharable attitudes? In the former case we should still leave out of account consciousness which is not relational consciousness; and we should hardly make clearer our concept of relations. We should be attempting to define consciousness in terms of one of the species included under consciousness. This would be still more obvious if we make consciousness one species of relations, by identifying it with the subjective attitudes as over against the social. The social relations, too, are conscious facts, and so must somehow be taken account of in our definition of consciousness. Hence defining consciousness in terms of one species of conscious relations can hardly be satisfactory, even on a relational theory. We must abandon, then, the path of relations, for it leads to limbo. All relations are ideal constructions; and consciousness is a factor in all ideal construction, waking or dreaming. There are, moreover, forms of experience which are not of the constructive kind; and where there is experience, there surely is consciousness.

But if what you meant to say is not that consciousness is a relation between terms figuring somehow within the field of consciousness, but that it is a type of interaction between energetic centers, a type of energetic continuity between energy as nervous structure and energy as stimulus, then we shall have to ask how it figures or what difference it makes to this interaction. If this interaction is non-conscious, how can it account for the presence of consciousness? We seem to have the paradox that consciousness is a relation between non-conscious terms. The fact that it appears under certain energetic conditions of structure and stimulus does not prove that it is nothing else than the interaction of structure and stimulus, if you choose to use relation in this extraconscious sense. I can not distinguish this miraculous production of consciousness, out of non-conscious energies, from the materialistic position, which I shall discuss later.

What would seem to be indicated is that consciousness is a fact, over and beyond energetic conditions—a fact which makes all significant relations possible; which makes energy meaningful energy; just as space is not a relation or a system of relations, but makes possible the whole system of distance interactions, schematized by our constructive purpose into a system of relations; and as time is not a relation, but makes possible relations of before and after, of

past, present, and future. Thus consciousness, though not a relation, makes possible all significant relations, including time and space relations, as well as logical relations. As in the case of space it is not a question of a relation to space, but a question of the relation of energies to each other as conditioned by space, so in the case of consciousness it is not a question of the relation of facts or energies to consciousness, but the relation of these facts or energies to each other within the field of consciousness. But if this fact, which we call consciousness, is not a relation, what is it?

If consciousness is not a relation, is it a thing—another kind of thing, perhaps, from the world of things it illumines? Anaxagoras evidently felt after something which he could set over against the world of ordinary things. So he invented "*Nous*, infinite and self-ruled, mixed with nothing, the thinnest of all things and the purest; and it has all knowledge about everything and the greatest strength; and *Nous* has power over all things, over the whole revolution, so that it began to revolve in the beginning; and it set in order all things that were to be and that were; and all *Nous* is alike, both the greater and the smaller." Strange attempt this to get away from the world of quantitative processes, but lacking the tools to do so; to find something which does not move and yet is the source of motion. Aristotle in his conception of entelechy and the first mover does not get much farther. In the end, the world of process and that which is not only to make process significant, but to make it move, remain two kinds of thing. This idea of something which is not movement and yet the source of movement has been stated recently, in modern terms, by a brilliant biologist, Professor C. S. Minot: "The universe consists of force and consciousness. As consciousness by our hypothesis can initiate the change of the form of energy, it may be that without consciousness the universe would come to absolute rest."³ But this ambiguous status of consciousness, as that which is and is not a thing, which does not move and yet is the source of movement, is not very consistent or satisfactory. We must locate consciousness in one category or the other, and to that end we must make our concepts more clear and definite.

Ostwald has found an easy way of solving the problem, so he thinks, in simply giving consciousness the name of energy. And why not? Ostwald has no end of energies. So why not add consciousness to the list? But I do not wish to minimize the service of Ostwald. In the first place his tools have not enabled him to deal

³ *Science*, N. S., Vol. XVI., No. 392, p. 26. This is but scant recognition of the interesting discussion I had with Professor Minot last February (1907) and which helped me a great deal in formulating my own opinion, even if it does not agree with that of Professor Minot.

with consciousness as such. What he has dealt with is physiological and psychological processes. Now I freely admit that we may look upon psychological processes as energetic. I can see nothing in the way of such a view except prejudice.

The insistence in recent times that mental processes are not quantitatively comparable is due to the confusing of processes with the consciousness of processes. The consciousness of blue or pain or effort is not a quantitative affair. But the processes themselves are, however crudely, quantitatively comparable. Wherever you can apply the category of more or less, you have quantity. There are intensive quantities, as well as extensive. That we can not in the former case superimpose a quantitative unit does not prove that they do not differ in quantity. This is merely a matter of the exactness of the quantitative comparison. Fechner's mistake was not in regarding psychological processes as quantitative, but in trying to equate processes where quantitative units are possible with those where no such units are possible. It is no argument against the quantitative character of mental processes that they also differ qualitatively and that you can not equate quantity and quality. Neither can you do so in chemistry. There, too, you have to recognize certain original elements as well as quantitative relations.

Now all psychological processes, be they sensational, affectional, intellectual or volitional, differ in intensity, as well as in kind. The difference in intensity not only varies as regards more or less, but this variation bears definite and describable relations to physical and physiological conditions. Hence I see no reason why we should not use energy as a term for such differences. Pressures may be heavier or lighter without varying in kind. Colors may be brighter or fainter, pleasures or pains may be intenser or weaker, memories may last longer or shorter, ideas may be more or less vivid, the feeling of effort may vary in strength. Wherever you can vary as regards more or less, without variation in quality, there you have quantity. What else would you call it? Whether there is variation in quality as regards psychological processes, introspection must decide. There is no other judge. This difference in intensity must not be confused with our spreading out our qualitative series, such as our color series, in space in order to schematize the qualitative relations. Though our figure here is spatial, that does not make the relations quantitative. Distance here is merely figurative for the direction of difference of quality.

What I have stated in intensity terms, I might have stated in will terms. Will or desire is capable of being more or less, even if we can not measure it with exactness. All psychological processes are attention processes. They involve motor tendency and this

varies in strength. The mistake has not been in regarding conative tendencies or motives as differing in strength, but in regarding them as forces independent of the ego and acting upon the ego. Whether will, or conative tendency, which lies at the bottom of all psychic processes, is an energy different from electrical and nervous energy; how it interacts with other forms; whether it is radioactive or has some still subtler mode of making a difference; whether it acts at a distance—this would have to be dealt with in a discussion on energy and not on consciousness. At present I am inclined to think that mind-stuff is a distinctive type of energy, however ignorant we may be of its relation to other energies. Moreover, it seems evident that conative tendency is not, and therefore need not be, always conscious tendency, and that mind-stuff and consciousness, as effective at least, do not coincide. Whether, again, all energy can be reduced to one kind and whether will is that fundamental kind, is a question to be decided by scientific convenience and quite distinct from the problem of consciousness.

While we must acknowledge, then, that conscious *processes* are more or less, that they have describable relations or continuities with other processes, such as physiological and chemical, and that therefore we may extend the term energy to cover these, we can not on that account admit that consciousness as such is capable of more or less, any more than of qualitative difference. Is the consciousness of extended or heavy or colored things an extended or heavy or colored consciousness? Is the consciousness of a greater intensity a more intense consciousness than the consciousness of a less intensity? I can see no need for assuming a difference in consciousness. The variations in kind and in intensity can all be accounted for as due to variations in the complexity and intensity of the processes, conditioned by the cortex in the last analysis. There is no need in duplicating these differences on the side of consciousness. It is easier to suppose consciousness a constant and regard the variations as due to physiological processes than to duplicate the processes by making consciousness an energy. But if the fact of consciousness does not vary, either as regards quantity or quality, with the variation of energetic processes, then we may be sure that it is not itself energy or a function of energy, but must be treated as an independent dimension of reality. All our scientific evidence, introspective, biological, and pathological, fits in with this view. With the complexity of the biological structure consciousness has come into evidence, and the differentiation of conscious processes in the way of sensations, memory, reasoning has followed the growth in complexity of biological structure. And, again, with fatigue, disease and degeneracy of such structures, the complex conscious processes

fail to operate. When we are tired we fail to recall a familiar name, though we are conscious enough at the time. Disease makes us lose our visual and auditory images, makes us fail to think coherently and to regulate our activities in a purposive and orderly way, though we are as conscious as ever. The energy of conscious processes, therefore, can not be found on the side of consciousness.

Moreover, however much continuity there may be on the side of the energetic conditions of consciousness, consciousness as an effective factor no doubt appears at a leap—as light when the structural conditions of the eye are complete, or tone with the presence of the basilar membrane, or electricity when the proper motion or chemical conditions are furnished, with the difference that, while in the above cases the relations are energetic, the energies varying in some quantitative proportion, in the case of consciousness the category of energy is not applicable.

But, if consciousness is not a relation, not a thing or a form of energy, what sort of fact is it? Shall we accept the nominalist view championed by James and other introspectionists that consciousness is merely a name for the sum total of conscious processes, and that any attempt to deal with consciousness as such is a mere hypostasis—a mistaking of a logical abstraction for an independent reality? Is it like abstracting somniferousness from somniferous substances and then treating it as an independent fact? Is it nothing over and beyond certain processes?

There is surely enough truth in the nominalist view to make it plausible. We have seen by this time that consciousness can not be a thing; that, therefore, if you abstract from the processes in connection with which consciousness appears, there is no *thing* left. But is there not something suspicious about this introspective method and its easy solution? Does it not include first of all the fact which it was to separate, and then say that it is not outside? It is true that outside of conscious processes introspection furnishes no evidence of consciousness. But why should it? Neither does chemistry furnish any evidence of water or radium outside of the things known to contain water or radium. If you wanted arguments for the presence of consciousness outside of empirical conscious processes, you surely would not get them from introspection.

But the problem has not been stated fairly by the introspectionist. The ego is not statable merely as a stream of conscious processes. The ego is an affair of dispositions or tendencies, sometimes conscious, sometimes not. Consciousness surely does not make the stream of life continuous. The tendencies in the way of association and memory are present, sleeping or waking, else they would be of no use. Meaning is a matter of the working of the associative

mechanism, and this is recognized as a physiological fact. What makes a fact suggestive at any one time, what makes culture, is only to a small extent conscious. Even when adaptations are conscious for a while they may become habits. What becomes of consciousness when it is "not needed"? The question is not: Can you observe consciousness outside of conscious processes? Can you, like the old schoolmaster, see some boys that are not here? That is to talk nonsense. The question is: What significance does this fact, consciousness, have in the stream of the ego tendencies, where it is sometimes present, sometimes seemingly absent or absent so far as effective relation to the processes goes; which at most only partly, and in small part, illumines our fund of tendencies even when we are most awake? In short, what makes the difference between sleeping and waking? What happens when we *become* conscious? During sleep we are still there to other observers. We are energetic activities which can become conscious in an instant, by waking us up. In the meantime there is no evidence to others of consciousness. A little change in blood distribution and heat, perhaps, or it may be only an external stimulus of some intensity, furnishes the condition for the reappearance of consciousness, and the wheels of mind go round again. With the increased working of the extraconscious machinery of association we pass from sleeping to dim drowsiness and to organized waking meaning. In the stream of tendencies which we call the ego, there are, besides the conscious processes, the changes which the purposive ego and the spectators must *interpolate* in order to understand the conscious processes. If it were not for this seeming coming and going of consciousness and the continuity of the energetic processes, on which our feeling of continuity itself depends, we would not abstract consciousness—But what does it all mean?

The materialist is ready with a simple and at first sight plausible answer. He at least tries to meet the problem of seeming discontinuity in nature. His answer is that consciousness is a discontinuous function or incidental effect of the mechanical processes. He includes not only consciousness as such in this epiphenomenon, but all conscious processes. These, moreover, are not energy, but a picturesque chiaroscuro or halo of the going-on of the energetic processes, which are usually mechanically conceived. Or, stating it more crassly, but not less metaphorically, "The brain secretes thought as the liver secretes bile." Or, if you want more metaphors, consciousness is to the physiological mechanism what the head-light is to the steam-engine.

But while metaphors have always appealed to human beings, they are not very satisfactory as explanation. The conception of

energy for one thing has changed, and the materialist, familiar with the physical speculations of to-day, would be more apt to use electrical than mechanical metaphors. But that would not essentially alter the problem. We have also seen that conative processes, whether conscious or not, must be thought of as energy. They vary as regards quantity, and they bear definite relations to other forms of energy. We shall have to transfer these, therefore, to the energetic side of the account. Nor is it any argument against these processes that they are different from other forms of energy, that some of them at least are not extended, that they can not be weighed, and that the category of mechanical motion is not, therefore, applicable. Electrical energy and neural energy have neither mass nor weight; they do not come under mechanical motion; yet we have to recognize them as forms of energy and as making definite differences to other forms. We need have no difficulty, therefore, in recognizing mind-stuff as energy. And why should certain processes cease to be energy because illumined by consciousness, any more than space, though not active, prevents bodies from being active, though the activity has a very different value, and scope, too, no doubt, because conscious? The common objection raised against materialism, that it violates the law of conservation of energy, would not be serious if the theory met the facts, as scientific laws are mere generalizations from facts. It would at most only show the limitations of the so-called law. Neither is it an answer to materialism to charge it with moral baseness, as our ideals are what they are on any theory. And sometimes sad things are true. Our only concern now is, does it explain the presence of consciousness? We would have to agree with materialism that consciousness as such is not an energy, and hence can not do what energies do, even though we must recognize conscious *processes* as energy. Consciousness is not capable of quantitative variation. It can not be the cause of motion and change. But can we also regard it as an effect of energy? We are familiar now with all sorts of transformations of energy. We know that mechanical motion can bring about electricity or heat, so different from itself. But can we also conceive of energetic process producing a fact which is not energy at all—not transformable into energy, to be sure, because it is a different sort of fact, but can it, not being energy, be caused by energy? There is an unbridgable *saltus* here in the thinking of materialism; and none have been more candid in admitting this than some of the materialists themselves.

I do not see, however, that the *saltus* is any greater in making a non-energetic consciousness the effect of energetic changes than in recognizing, as James and Minot do, that consciousness is not a thing or energy, and yet make it produce energetic changes. The

chasm is about as wide one way as the other. That one form of energy can bring about changes in another form of energy is within experience and probability, but not that energy should be converted into non-energy, or *vice versa*.

Any theory, whatever it calls itself, which strives to derive consciousness, will have the difficulty of materialism—in losing the quantitative and energetic in what is not energetic. This involves an unintelligible *saltus*; and we shall always, therefore, look for a smoother transition between consciousness, on the one hand, and the world of processes, with their quantitative variations, on the other. This is furnished in the theory of consciousness as a constant in the universe, though depending upon certain conditions for its manifestation, as electricity is now regarded as an original fact (by some the most original), though dependent upon conditions. This brings it into the realm of the familiar.

Materialism has at least the advantage of simplicity, but parallelism is as cumbrous as it is unintelligible. To remedy the fancied injury to the law of the conservation of energy, it duplicates physiological and psychological processes and leaves them suspended in mid-air, without either series making any difference to the other. To speak of psychological contents, where there is no evidence, is surely doubtful psychology, and, so far as I can see, has no epistemological justification. To wind up with idealistic monism is as roundabout as it is a doubtful way of arriving at such a doctrine. To make psychological processes parallel to mechanical rearrangements can only convey sense to a man who does not think about it. And, lastly, to give the world of physical objects any status at all, since it can make no difference to the world of psychic processes, seems impossible. If this furnishes credulous people a short cut to idealism, let them enjoy it.

We have already seen that psychological processes must be regarded as energy, bearing statable relations to other forms of energy. These processes must be stated as physiological energy, whether we make conative or spiritual energy a distinct kind, merely bound up with brain cells as its condition, or not. The physiological body is a net for catching several types of energy, mechanical, chemical, electrical, nervous, and conative. There is no reason for drawing any line of holy and unholy between these, at least for scientific purposes, and together they furnish the individual body, with its race and individual characteristics, its continuities, and its specific activities. There remains the surd of consciousness. To say that this is parallel to energetic processes conveys no meaning to me.

There remains the interaction theory with its insistence upon the causal efficacy of consciousness. With the best of motives, this

theory is as confused epistemologically as the preceding. There can be no sense in speaking of the consciousness of pain or blue as interacting with the physiological processes of pain or blue. The pain processes and the blue processes, no doubt, vary with other energies, and in turn act upon them, but not the *awareness* of them. By stating consciousness as an independent variable, an ultimate, non-energetic fact, we shall have the simplicity of materialism without the contradiction of trying to convert energy into non-energy. We shall fulfill the intent of the materialist by taking consciousness out of the energetic category, while we acknowledge the energetic claims of the conative processes. We shall save the duplication of parallelism and its absurd separation of two sets of processes into independent causal series, but we shall accomplish the intent of parallelism by showing the independent and non-derivable character of consciousness as such. We shall finally accomplish the intent of the interaction theory by showing the energetic character of the conative processes, their efficacious relation to the other energies of nature, while we get rid of the absurdity of having a non-energetic consciousness interact with an energetic world.

It is time we were getting over the false prejudice that the body is something mean and base and that activity is being degraded by being called physiological. The Greeks did not look upon the body as anything mean. On the contrary, it was to them the embodiment of beauty and meaning. It furnished the inspiration for Greek sculpture. It is fraught with the potentialities of life. Plato alone, in some of his pessimistic moods, makes the body a prison house. Aristotle is here the truer Greek. For the evolutionist, the body is the bearer of the tendencies, the biological heritage, of the race; and for the psychologist it must furnish continuity and meaning to life through habit and memory. Mean is what mean does, and good is what good does, and if the body is bound up with all our badness, it also is bound up with all our goodness and appreciation of beauty; it makes us one with the world of energies, at the same time that with its tendencies it differentiates those energies for us. All it needs is consciousness to convert this structure, when it has reached a certain complexity, into actual meaning. And it does not, like Prakriti, vanish at the glance of Purusha. But it furnishes the activity still, though meaningful activity. And so we fail to give it credit. The body is the organ and the music, too, as consciousness is added to the complex bodily energies. The ceaseless, untiring player is nature, which in us becomes purpose and ideals. It is a mistake to identify the body merely with the physical and chemical forms of energy. It includes nervous and will energy as well. There is ample chance for a hierarchy of energies within

the body. It is the bearer not only of the past and present, but it is pregnant with the future.

Inasmuch as we must account for the difference in meaning or in mental activity by the greater complexity on the part of the energetic or physiological conditions, there can be no use in speaking of subconscious mental activity. The test of whether processes are conscious or not must be empirical. Conscious processes are, no doubt, conditioned all the while upon non-conscious processes, but nothing is gained by calling the latter subconscious.

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“TRUTH” VERSUS “TRUTHFULNESS”

MY account of truth is purely logical and relates to its definition only. I contend that you can not tell what the word “true” means, as applied to a statement, without invoking the concept of the statement’s workings.

Assume, to fix our ideas, a universe composed of two things only: imperial Cæsar dead and turned to clay, and me, saying “Cæsar really existed.” Most persons would naïvely deem truth to be thereby uttered, and say that by a sort of *actio in distans* my statement had taken direct hold of the other fact.

But have my words so certainly denoted *that* Cæsar?—or so certainly connoted *his* individual attributes? To fill out the complete measure of what the epithet “true” may ideally mean, my thought ought to bear a fully determinate and unambiguous “one-to-one-relation” to its own particular object. In the ultra simple universe imagined the reference is uncertified. Were there two Cæsars we shouldn’t know which was meant. The conditions of truth thus seem incomplete in this universe, so that it must be enlarged.

Transcendentalists enlarge it by invoking an absolute mind which, as it owns all the facts, can sovereignly correlate them. If it intends that my statement *shall* refer to that identical Cæsar, and that the attributes I have in mind *shall* mean his attributes, that intention suffices to make the statement true.

I, in turn, enlarge the universe by admitting finite intermediaries between the two original facts. Cæsar *had*, and my statement *has*, effects; and if these effects in any way run together, a concrete medium and bottom is provided for the determinate cognitive relation, which, as a pure *actio in distans*, seemed to float too vaguely and unintelligibly.

The real Cæsar, for example, wrote a manuscript of which I see

a real reprint, and say "the Cæsar I mean is the author of *that*." The "workings" of my thought thus determine both its denotative and its connotative significance more fully. It now defines itself as neither irrelevant to the real Cæsar, nor false in what it suggests of him. The absolute mind, seeing me thus working towards Cæsar through the cosmic intermediaries, might well say: "Such workings only specify in detail what I meant myself by the statement being true. I decree the cognitive relation between the two original facts to mean that just that kind of concrete chain of intermediaries exists or can exist."

But the chain involves facts prior to the statement the logical conditions of whose truth we are defining, and facts subsequent to it; and this circumstance, coupled with the vulgar employment of the terms truth and fact as synonyms, has laid my account open to misapprehension. "How," it is confusedly asked, "can Cæsar's existence, a truth already 2,000 years old, depend for its truth on anything about to happen now? How can my acknowledgment of it be made true by the acknowledgment's own effects? The effects may indeed confirm my belief, but the belief was made true already by the fact that Cæsar really did exist."

Well, be it so, for if there were no Cæsar, there could, of course, be no positive truth about him—but then distinguish between "true" as being positively and completely so established, and "true" as being so only "practically," elliptically, and by courtesy, in the sense of not being positively irrelevant or *untrue*. Remember also that Cæsar's having existed in fact may make a present statement false or irrelevant as well as it may make it true, and that in neither case does it itself have to alter. It being given, whether truth, untruth, or irrelevancy shall be also given depends on something pertaining to the statement itself. What "pragmatism" contends for is that you can not adequately define the something if you leave the notion of the statement's functional workings out of your account. Truth meaning agreement with reality, the mode of the agreeing is a practical problem which the subjective term of the relation alone can solve.

People, mixing history with the purely logical inquiry, and falling into inveterate habits of speech, will still say: "The statement is true anyhow, true in advance, born true, true apart from any of its workings, and the workings are themselves determined by that prior truth." This notion of an immanent or inherent truth, meaning a truth with only a part of the constituents of its full definition realized in fact, is, of course, indispensable in practical life. Millions of statements there *pass* for true, for one that lives up to what the full concept implies.

Would it satisfy the repudiators of the fuller definition if we agreed to let them keep the word "true" for what they stickle for so exclusively, namely, the more preliminary and objective conditions of the cognitive relation—so that for any words about Cæsar to be true in that lopped and truncated sense it would suffice that Cæsar should have really existed—while the word "truthful" should be reserved, as having the more concrete sound, for the entire unmutated notion for which Mr. Schiller and I contend?

Mr. Schiller and I would then appear as fighting the battles of truthfulness against truth. The question would be almost purely academic, for in actual life the true and the truthful would usually denote the same body of actual human statements or beliefs. Even now none of the *facts* which either party emphasizes has ever been denied by the other party, and the quarrel might have the bottom knocked out of it altogether, so far as it related to truth's definition only, by the invention of this or some other pair of new technical terms.

The friends of "truth" would still have to admit, however, that "truthfulness" is the more plenary and fundamental notion, that it includes the whole of "truth" and supplements its deficiencies, and alone defines adequately what correct and perfect knowledge may mean.

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DISCUSSION

PROVISIONAL AND ETERNAL TRUTH

DR. ADAMS treats my little article "Sub Specie Æternitatis" with so much sympathetic courtesy that I venture to say another word in defense of my position. And first let me say that the term which I took for a title was used ironically, with no wish to belittle a phrase of so much dignity and quality. The protest which I entered was against claiming eternal validity for particular theories about existence, which have been produced under conditions of actual history.

I find it a little hard to believe that scientists all continue to conceive their purpose as the discovery of the "real" constitution of things in the sense advocated by Dr. Adams, if I have understood. Recent years have wrought a marked change in this matter. Such a book as Poincaré's "Science and Hypothesis" is no isolated phenomenon. Professor J. J. Thomson writes at the beginning of his recent book, "The Corpuscular Theory of Matter,"¹ that in

¹ I depend for this reference upon the review in the *Athenæum* of December 28, 1907, p. 829.

physics a theory of matter is a policy rather than a creed, and that its function, apart from the coordination of phenomena, is to stimulate and direct experiment.

But to come to the point. It is not so much a matter of what the scientist or the philosopher thinks he is doing as what he has actually got when he reaches a satisfactory conclusion about something materially existent. For a number of years the molecular hypothesis has had the character of ascertained truth. Just at present its future availability is rendered extremely doubtful by the advantages which are claimed for the electron theory. If the electron theory in its radical form shall replace the theory of material atoms, on what basis will the change take place? Will it be because "reality" is made of electrons instead of material molecules, or because the new theory performs precisely the same service, under conditions of wider observation, which the old theory performed under conditions of more restricted observations? Was the corpuscular theory of light believed in less confidently because it was eventually replaced by the ether theory? and what right have we to say that the ether theory has some *a priori* guarantee against being improved upon? And why should we not expect new observations which will require the revision or the rejection of concepts? So long as the old concepts functioned properly and satisfied all the available tests and criteria, how were they distinguishable from "true" concepts? How can "true" concepts be proved "true" except by the use of whatever critical tests are available? The very tests which the antiquated concepts for a time satisfied. It may be that many scientists aim at discovering an ultimate nature of things; I suppose they do: but this attitude seems at the present day a little naïve. One need not deny that there is an ultimate nature of things, but it does seem evident that any human conception of it must be liable to revision in the light of wider observation. And the new conception which replaces the old one will do precisely the same duty as the old one; and possibly, in its field of phenomena, it will not work so well, *i. e.*, it will not be so evidently true as the old one appeared to be in its own narrower field. It may well be that "the system of truths about reality is eternally true." The decision on this point depends on how we use the word truth, a question which has received already a fair amount of ventilation in the pages of this JOURNAL. But I can not see how any system of human judgments about experience shall not be indefinitely liable to revision. And why should any philosophy of history, or any "complete" logic which is a description of actual intellectual methods, be in a different case? Why is the science of to-day and of to-morrow secure in some *a priori* way against the transitions

incidental to its having a future? There are, no doubt, truths of the eternal type, but these are relations in pure logic, with no *a priori* consequences for existence until they are resorted to as satisfactory expressions of the present degree of information. The principle *sub specie aeternitatis* seems to mean that given premises have certain consequences and not others. It is a dialectical principle with an application to pure meanings; it is, as Professor Santayana has so brilliantly shown, the Socratic principle which enlightens and directs reasonable conduct, but it does so by means of human judgments about existing cases, by means of the minor premise which lifts existence into the syllogism, and clarifies it with ideas. And to say that any particular theory about the existing objects of experience has eternal validity is to claim either that it states merely the necessary conclusions from adopted premises (logic and mathematics) or that no more information about the subject-matter is forthcoming.

I can not see any cause for dissatisfaction with the position here outlined. To wish for eternally valid theories about existing things is, it seems to me, to wish that information may stop coming in, which is essentially the scholastic attitude.

I suppose I have been only partially aware of the real scope of Dr. Adams's criticism. But one point occurs to me. In significant human problems Dr. Adams admits a measure of variation, while he insists upon an important degree of permanence. This as an empirical observation about human nature is, of course, true. And one can go farther. The principle *sub specie aeternitatis* is the guiding principle in a sympathetic appreciation of other times and other people. To understand the human past is to put oneself sympathetically at another's point of view by perceiving there the principles which we recognize as authoritative for ourselves. To refuse to take this step is to pronounce the object of our attention unintelligible, *i. e.*, irrational. Any imaginative interest in the Greek people, any comprehension of social problems in Russia, even the reading of any book, depends upon the initial assumption that intelligible, *i. e.*, logical, sequences characterize the subject-matter. Whether in studying the past we misrepresent it or not, we at least feel a sympathetic interest in it; we are not willing that Plato and Dante shall be unintelligible. And what makes them intelligible is the presence of sequences among ideas and motives and acts which we recognize and respect. And this principle is not merely one for interpreting the past; it is the principle of all human relations where people seek to understand one another.

Quite so. But this is not in the least inconsistent with the position maintained in the earlier part of this discussion, and interpreta-

tions in history are liable to revision in the same way as are theories in science. Any interpretation, any inference, depends upon the application of judgments claimed to be eternally true, but which are, therefore, not existential, while any statement about existing things depends upon the information at hand about the things in question.

It may be replied that the progressive revision of scientific descriptions approaches a limit where the information will be all in, that although this limit may be never reached, nevertheless it is a logical term in the series of descriptions each of which is the correction of a preceding one. What is here claimed is, at the same time, a confession. It is a "logical" term, *i. e.*, it depends upon an assumption. And the assumption is evidently that of a bounded universe. The discussion of this concept would be too far-reaching to be possible here, but two things may be said. The bounded universe is a sufficiently evident fact in the eyes of primitive folk, and it was appropriate to the theology of St. Thomas and the poetry of Dante, but our experience and science hardly reveal anything of the sort. And in the second place, as the arrival at the above-mentioned limit is an event indefinitely remote, it does not confer finality upon this or that specific conception of existence.

I would gladly agree with my critic, and I would not be understood to say that the principle *sub specie aeternitatis* has no application. It has, however, the only application which a dialectical principle can have: what is it but the principle of contradiction endowed with the sympathy of a certain human contact and with the dignity of a dramatic universality? And here in the principle of contradiction we have, to be sure, a truth that is eternally true.

Again I ask, why is provisional truth about empirical existence so unsatisfactory? Is there any way of accounting for the exaltation of eternal truth except the persistence of that eighteenth-century enthusiasm for deduction which has caused philosophy to be, even down to our own day, so much more a matter of syllogisms than of observation and inquiry?

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REVIEWS AND ABSTRACTS OF LITERATURE

The Dancing Mouse: A Study in Animal Behavior. ROBERT M. YERKES.
New York: The Macmillan Co. 1907. Pp. xxi + 290.

This study is the nearest approach yet made by any student of behavior to giving a complete and systematic account of the varieties and complexities of the actions of a mammalian race. Comparative psychology is advanced by it both from the standpoint of methods of experimentation and from that of the facts which it actually contributes.

The book systematically covers a wide field both historically and experimentally. On account of its comprehensiveness, it stands in pleasing contrast to the interesting, but isolated, bits of natural history which at the present time comprise the factual side of the science of mammalian behavior.

In regard to the time and place of origin of the race of dancing mice, the animals which are the subjects of all of Dr. Yerkes's experiments, the author makes the statement "that a structural variation or mutation which occasionally appears in *Mus musculus*, and causes those peculiarities of movement which are known as dancing, has been preserved and accentuated through selectional breeding by the Chinese and Japanese, until finally a distinct race of mice which breeds true to the dance character has been established. The age of the race is not definitely known, but it is supposed to have existed for several centuries" (p. 15).

Dr. Yerkes treats in two chapters ("Dance Movements" and "Equilibration and Dizziness") of the peculiar movements of the dancer. He discusses these movements both from the standpoint of the literature and in the light of his own observations. Six peculiarities of behavior are noted: (1) The dance movements—whirling, circling, figure-eights, zig-zags; (2) restlessness and the quick jerky movements of the head; (3) lack of responsiveness to sounds; (4) more or less pronounced deficiency in orientational and equilibrational powers; (5) lack of visual dizziness; (6) lack of rotational dizziness.

The anatomical and histological work upon the structure of the ear of the dancer is next examined, in order to find a structural basis to which the functional variations just mentioned might be assigned. The author finds reason to doubt the conclusions advanced by Rawitz to the effect that the dancer possesses only one normal canal, the anterior vertical, and that the nervous elements of the cochlea are degenerate. The following quotation from the author serves to give us his position upon the possibility of correlating peculiarities of function with variations in structure: ". . . no structural conditions have been discovered which account satisfactorily for the dancer's peculiarities of behavior. That the ear is unusual in form is highly probable, since three of the four investigators who have studied it carefully agree that it differs more or less markedly from that of the common mouse." ". . . the status of our knowledge of the structure of the central nervous system is even less satisfactory if possible . . ." (p. 71).

The author finds that while the adult animals are wholly insensitive to auditory stimuli, the young, at least those belonging to certain lines of descent, are sensitive to such stimuli at a short, but definite, period of their lives. His table (p. 89) shows that in these young animals auditory responses may be obtained at the thirteenth, fourteenth, or fifteenth day (the exact age at which such responses may be observed varies from individual to individual) and continue roughly for from two to four days. In the young of another line of descent, no auditory reactions were obtained at a corresponding age or at any later age.

Five chapters of the book are devoted to the sense of sight. Two of these are given over to brightness vision, two to color vision, and one to the role of sight in the daily life of the dancer. Before taking up the results and methods in detail, it may be said that Dr. Yerkes has intelligently and systematically maintained the difficult control factors necessarily involved in the successful carrying out of such experiments.

Since, according to the author, the dancer does not withstand the effects of hunger, and even when hungry does not ordinarily show eagerness to search for food, some other stimulus than that of food had to be sought. The author finds that he may control the naturally abundant and incessant activity of these animals by the use of the electric induction shock. Punishment instead of reward is thus used for forcing the animal to make a discrimination.

The method as applied in these experiments follows in detail: A discrimination box (visual), consisting of a large nest compartment containing food and room for dancing (the latter is an important factor), and a large entrance compartment, containing a door which could be opened by the animal from the end nearest the nest-box. At the farther end of the chamber, two doors, right and left, led, respectively, to two electric-boxes, the floors of which were arranged to give the animal a weak induction shock whenever the experimenter so desired. An opening led from each of these electric-boxes through an alley back to the nest-box. An opportunity for visual discrimination by brightness difference was provided by placing dead-black cardboard at the entrance to one of the electric-boxes and white cardboard similarly at the entrance to the other box. These cardboards were movable and could be attached to the openings leading to the one or to the other box at the will of the experimenter. The mouse was required to choose the entrance surrounded by white cardboard. If this were done the animal could return to the nest-box without receiving an electric shock (the electric shocks were given whenever the mouse entered the electric-box the entrance to which was surrounded by black cardboard). Without entering into Dr. Yerkes's elaborate control tests, it may be said that the mice learned to discriminate perfectly the white cardboard from the black. Efforts were then made to determine how slight a difference in brightness enables the dancer to discriminate one light from another. Two methods of stimulation were used: (1) light was reflected from Nendel's gray papers; (2) white light (electric incandescents) was allowed to illuminate two compartments. These compartments were illuminated separately, the light emanating from above.

Those animals which had already learned to discriminate white cardboard from black in the apparatus just described were tested in the same apparatus again, only the black and white cardboards were replaced by light gray paper (No. 10) and dark gray (No. 20). It was found that they did not always choose the brighter of the two grays as was expected—a certain training period was necessary in order to perfect discrimination. Dr. Yerkes infers from numerous further tests with gray papers that the amount by which Nendel's gray No. 10 differs in brightness from No.

20 is near their threshold of discrimination. In the experiments with transmitted light, the author attempts to answer the question whether Weber's law in any form holds for the brightness vision of the dancing mouse. He became convinced, after many tests, that Weber's law does not hold for the brightness vision of the dancing mouse. Attention is called to the fact that in this test with transmitted light the author apparently does not rule out the possible disturbing influence of possible differences in temperature between the two light compartments.

In the first series of tests on the color vision of these animals colored papers were used as stimuli and found to be unsatisfactory. Approximately monochromatic light filters were then employed. The author characterizes the red as "perfectly satisfactory," the blue-violet as "good" and the green as "poor." After conducting an enormous number of careful tests, he concludes (p. 176) ". . . that, although the dancer does not possess a color sense like ours, it probably discriminates the colors of the red end of the spectrum from those of other regions by difference in the stimulating value of light of different wave-lengths, that such specific, stimulating value is radically different in nature from the value of different wave-lengths for the human eye, and that the red end of the spectrum has a very low stimulating value for the dancer." He then goes on to say that most of the experiments which have hitherto been carried out upon color vision in animals have really failed to touch the color vision problem at all, because sufficient care has not been taken to separate the brightness factor from that of hue—a statement which the reviewer can heartily concur in.

Interesting chapters are devoted to methods of learning, habit formation, efficiency of training methods, the duration of habits, individual, age, and sex differences, and to the inheritance of forms of behavior. It is of interest to note that the author finds that the dancer can be aided in the solution of a problem by being put through the necessary acts. He failed to find the presence of imitation after very careful tests. "Although abundant opportunity for imitation in connection with the opening of the doors in the discrimination box was given to twenty-five individuals, I obtained no evidence of the ability to learn by imitation." This apparent lack of imitation in the dancer is rather surprising in view of the fact that Berry¹ finds evidence for both instinctive and voluntary forms of imitation in the white rat—an animal which the reviewer believes has far less acuity of vision than the dancing mouse.

The author finds no evidence for the belief that a particular form of behavior acquired during the lifetime of an individual can be transmitted by that individual to its offspring.

This work has set a high standard in the field of behavior. Any departure from its tenets in the way of lessening the control of experimental conditions would be a step in the backward direction. The only thing in the way of criticism which can be made about the volume is concerned with the author's rather sweeping condemnation of the use of

¹ *Journal of Comparative Neurology and Psychology*, Vol. XVI., No. 5, 1906.

food as a stimulus in controlling the reactions of animals, and the installation of punishment in its place.

Dr. Yerkes speaks of the inhumaneness of the hunger method. Surely he can not be unaware of the statements of many of the men using this method, to the effect that their animals are not starved, that they get their hunger completely satisfied after the day's tests, and that they remain in better health during experimentation than when idle and surrounded by food. His broad statements will lack experimental support until he has put down in parallel columns the behavior records of two sets of animals, the one set reacting to food, the other to the electrical shock, and these parallel records should be taken from experiments on "many mammals" and not from those on the dancer alone. To these items he would likewise have to add a record of the body weights of the two sets of animals during the period of experimentation (the reviewer has tested the body growth, using increase in weight as an index of growth, of young rats under conditions of training, and has found it normal).

While not condemning the punishment method, it would seem that it must be admitted that its employment in any but extremely simple forms of apparatus, such as that used in discrimination tests, is extremely burdensome and clumsy. Even in discrimination tests, where the difference in the stimuli to be reacted to is slight, the method is used at a peculiar disadvantage because repeated tests in which the animal constantly makes failures, leading always to a shock, tend to make the animal hesitant about reacting at all, and at such times it, at all costs, ought to be kept free from such disturbing influences. Judging from Dr. Yerkes's experiments, where he attempts to find an auditory function in these animals (p. 84) there is a deleterious summation effect which forever precludes the possibility of making the punishment equal from test to test (which is Dr. Yerkes's main contention) regardless of how constant the physical properties of the induction shock are maintained.

But can such a stimulus be kept constant? On the physical side the strength of the battery varies, the perfectness of the contacts varies; likewise the temperature of the wires varies; the animal may happen to tread simultaneously upon the two wires now here, now there, consequently the circuit is completed when a varying resistance is present. On the physiological side, two animals in all probability never offer the same resistance to the current, the difference being due to the physiological state of the organism; two animals differing in weight receive a varying amount of shock, the heavier animal, other conditions being the same, making the more perfect contact. But probably more important than any of the above are the facts that the moisture and cleanliness of the feet differ in different individuals and in the same individual from time to time. These difficulties in the way of using the induction shock in the manner suggested by the author may be for the most part entirely chimerical, but at least the burden of proving that they are insignificant lies with Dr. Yerkes—their insignificance can not be assumed. As an auxiliary method (to be used in connection with food) having its *raison*

d'être in the hastening of a discrimination or an association, we may grant its possible usefulness, but to the propositions that it is more "humane" and that it can be substituted in most situations for the more natural method of using food as a stimulus, we can not agree.

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A Student's History of Philosophy. ARTHUR KENYON ROGERS. Revised edition. New York: The Macmillan Co. 1907. Pp. xiii + 511.

In a department of literary activity in which English written books are not too common, Professor Rogers has achieved a distinct success. Hitherto the Germans would seem to have had a monopoly in the writing of the history of philosophy. We have many admirable translations, but very few original treatises. That there was need for such a work as Mr. Rogers has produced, and that this volume has helped to supply the want, the fact that it has attained to a second edition amply proves. As its name indicates, this book is primarily intended for students, but the cultured world generally will find it interesting and instructive. Within the limit of five hundred pages the author has succeeded in presenting a most luminous, well balanced, and comparatively full treatment of the history of philosophy from its beginnings in Greece to our own times.

There are several features of this work which commend it. For one thing, it is written in clear and simple language, largely avoiding many of those technical terms which are so apt to confuse and repel the young student. Again, it gives exceedingly full extracts from the books dealt with, thus bringing the reader into contact with the various writers themselves. And once more, a unifying principle of development is exhibited in the volume which shows that the history of philosophy is not a series of haphazard isolated opinions, but really a connected whole.

In comparing the first edition with the second, one observes that considerable improvements have been made by way of both omissions and additions. Some parts of the introduction have been left out, and the treatment of Fichte has been curtailed. On the other hand, the section on Kant has been rewritten and augmented; also a brief account of current thought has been appended. As the author himself says, the relative space given to different topics must be a matter of individual judgment. But we feel that while the treatment of Plato is satisfactory, some elements in Aristotle have been overlooked. Again, while our author has done ample justice to Locke, Berkeley, and Hume, he dismisses the Scottish school of common sense with less than a page, barely mentioning Sir Wm. Hamilton. Kant and Hegel, as befits their epoch-making importance, have, each, a considerable space allotted to them; but Herder and Lessing, Fichte and Schelling, are rather summarily dealt with; while Jacobi and Herbart, not to speak of Schiller and Schleiermacher, are omitted. We notice that Mr. Rogers has added to the value of his treatment of Kant by now giving some account, though still rather slight,

of the "Critique of Judgment," which is really the keystone, or at least the connecting link, of Kant's theoretical and practical philosophy. While his study of Kant is exceedingly lucid as far as it goes, Mr. Rogers has a tendency to slur over the difficulties. For example, no account is attempted of the "Deduction of the Categories," nor does he show how, by means of the schema of time, Kant brings the sense perceptions and the notions of the understanding together. We notice that in the present edition a short résumé of Spencer's philosophy is supplied, the want of which was a serious omission in the earlier issue.

Finally, Professor Rogers has brought his book up to date by mentioning some of the writers of recent times. He has omitted, however, all reference to the present philosophical activity of Germany and France. Hartmann, Wundt, Eucken, and Nietzsche, to mention only a few of the German writers, are not named. In a volume which emanates from the United States one would have expected a fuller reference to American writers than that which the author makes. Pragmatism, as represented by Dewey and James, is a force to be reckoned with, and it would have been interesting at least to show its bearing upon, and its relation to, previous tendencies. The writer has evidently a dread of loading his work with names and burdening his narrative with details. The result is that in some places the treatment lacks definiteness and has sometimes the aspect of a philosophy of history rather than a history of philosophy. This seems notably to be the case in the sections called "The Religious Period" and "The Introduction to the Middle Ages," where the history, though interesting, is, perhaps, too general and too profuse for the size of the volume.

Of course, many names which would naturally find their place in a larger work have of necessity been passed over. We must not, however, quarrel with the limits a writer sets himself; and we must repeat that one of the merits of this history is, that while nothing essential to the main stream of thought is omitted, it is not crowded with a mass of subsidiary details. On the whole Mr. Rogers has produced a book which, by reason of its orderliness of arrangement, lucidity of style, and accuracy of statement, can not fail to prove helpful to all who are entering upon the study of philosophy.

ARCHIBALD B. D. ALEXANDER.

LANGBANK, SCOTLAND.

Die Weltanschauungen der grossen Philosophen der Neuzeit. Dritte Auflage. L. BUSSE. Leipzig: B. G. Teubner. 1907. Pp. vi + 164.

The contents of this little volume are a course of popular lectures which Dr. Busse delivered in 1902-03. In dealing with the history of modern philosophy it sets itself, therefore, the double task of technical accuracy and simplicity of presentation; and it is noteworthy for the skill with which its author steers a middle course between the extremes of systematic detail and loose paraphrase. Structurally, the exposition is divided as follows: Part I., modern philosophy to Kant, comprising rationalism

from Descartes to Spinoza, empiricism from Bacon to Locke, philosophy in the century preceding the "Critique of Pure Reason," "The Critical Philosophy." Part II., modern philosophy since Kant, subdivided into the idealistic trend, the realistic trend, neo-Kantianism, positivism. The scope of the work necessitates brevity in the treatment of even the most important systems, and also some omissions, particularly accounts of Hobbes, Fechner, and Wundt; but in spite of these limitations there is a remarkable comprehensiveness in the logical outline. Both externally and internally the philosophical continuity, significant historical relationships, and general direction of development are clearly indicated. The introductory perspectives of the first part are the familiar ones, rationalism and empiricism, dogmatism and skepticism, spiritualism and materialism. Each system is prefaced by brief biographical notes, and the entire exposition exhibits agreeable clearness, instinct for essentials, and sense of proportion. The point at which the reader may feel most inclined to raise a question about the logical linkage is the ascription of empiricism to Locke, and of a "compromise standpoint" between this and rationalism to Hume (p. 49). This appears less satisfactory than the grouping of Locke, Hume, and Berkeley as empiricists, progressive in thoroughness, and only semi-consciously or subordinately rationalistic.

It is in setting forth the internal logical structure that the author is most successful, though his conciseness occasionally makes one wish for a fuller treatment. The compression of Hegel into five pages, is significant in contrast to the allowance of twenty to Leibniz, and twenty-five to Kant. The exposition of Herbartianism fails, in the reviewer's opinion, to relieve that metaphysical realism of the unreal artificial cast which seems to be ingrained in it. The section on Lotze is especially good. An important feature of Dr. Busse's method appears in the pointed criticisms which now and then flash into the text, revealing some vital inconsistency or defect in the system under discussion.

Concerning the popular intelligibility of the work one can not repress a doubt. The reviewer believes that a historical system can not be really understood without a preliminary appreciation of its temperamental and social as well as of its logical motives, and, further, that it can be grasped only by working through its historical technique to a stage where its ideas become plausible in themselves. Not until one sees that the system has vitality, and at least partially fits the world as it presents itself in one's own experience, does one possess the philosopher's own view. From this standpoint Dr. Busse's exposition seems inadequate. Perhaps it is addressed to a more learned company than its preface indicates, and certainly the fact of a third edition testifies to a favorable reception; but it may be doubted whether the volume, with all its merits, reveals the real *Weltanschauungen* of modern philosophy. Rather does it furnish an admirable map by which the reader may guide himself over fields whose intrinsic meaning must be obtained from other sources—perhaps best by studying the fields themselves.

BERNARD C. EWER.

Rousseau. PAUL HENSEL. Leipzig: B. G. Teubner. 1907. Pp. 122.

To the literature upon Rousseau, already so extensive, has been added a volume by Dr. Hensel which is not to be considered in the light of a biography so much as an appreciation. The aim of the book, according to the design of the series, "*Aus Natur und Geisteswelt*," is to shed the light of modern science upon weighty questions of universal interest in such a way as to assist individuals to achieve the freedom and self-reliance of the spiritual life, at least to a degree beyond the narrow circle within whose limits they are generally walled and confined by the circumstances of their vocation. There are chapters upon Rousseau the man, his philosophy of history, his philosophy of right, his theory of education, the "*Nouvelle Héloïse*," and the philosophy of religion, together with a synchronic table of the life and writings of the citizen of Geneva. Lacking the brilliancy and exhaustiveness of Morley's "*Rousseau*," the book is not less to be welcomed for its evidence of soundness of scholarship and sanity and impartiality of judgment. Over against Voltaire, Rousseau is regarded as belonging to an alternative type of greatness. He is an originator, where Voltaire was a completer; a romanticist, where Voltaire was a classicist; a bearer in his bosom of the modern age, which only he possessed, where Voltaire was the master of the age of the Enlightenment; a star rising in gloom and mystery far from the full realization of his glory, where Voltaire was as the sun in his zenith. The "*Confessions*" of Rousseau have been discredited, but without reason; they not only claim objectivity, but they come from the pen of a master in the method of introspection, and are still the chief source of our understanding of Rousseau the man. It is not by chance that so much of the space of the "*Confessions*" is given to the recollections of Rousseau's childhood, for the life of childhood is more *feeling* than is the life of the adult, and Rousseau not only lived by his feelings, but cherished and remembered them. None took precedence of his love of country; no sorrow afflicted him more than the persecution which proceeded against him from the government of his beloved Genoa, and his conversion from Calvinism to Catholicism was little more than the logical consequence of the prior step of flight. The conduct of Rousseau was often ill-advised, even inexplicable, but in this he remained a child, that to him the world was always a world of dreams. Only one of his works, the "*Nouvelle Héloïse*," was a labor of joy and love, the rest were burdens taken upon him to be shuffled off; for himself, he was happy when he could live in the moment. His friendship and love, however unworthy, were at least not to be bought for gold, but involved a deep inner relation that must be felt in order to be understood.

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JOURNALS AND NEW BOOKS

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Band 46, Heft 5. *Beiträge zur speziellen Psychologie auf Grund einer Massenuntersuchung* (pp. 321-333): G. HEYMANS und E. WIERSMA. - The authors report that the results of their former questionnaire (*Zeitschrift für Psychologie*, etc., Bds. 42, 43, 45) upon the mental and moral characteristics of men and women, which was answered almost exclusively by men, are confirmed by the answers received from a considerable number of women. The few cases of reversal, 59 out of 222 questions, show no tendency on the part of either the men or women to idealize the same or opposite sex. *Über die psychologischen und die logischen Grundlagen des Bewegungsbegriffes* (pp. 334-344): MAX FRISCHEISEN-KÖHLER. - Hamann's analysis of the psychological basis of the concept of motion (*Zeitschrift für Psychologie*, etc., Bd. 45) is found inadequate to the comprehension of various mathematical and physical applications of the concept. Thorough analysis shows that the only difference between psychology and physical science is a methodological one. *W. Wundts Stellung zu meiner Theorie der stroboskopischen Erscheinungen und zur systematischen Selbstwahrnehmung* (pp. 345-362): KARL MARBE. - Marbe maintains that the stroboscopic effect can be stated in terms of the operation of Talbot's law together with the fact that the perception of movement does not fail when a phase of it is barred from view. The phases need not be perceived at rest. There is no interruption of the perception of movement, and consequently no need for any mental unification. He attacks very warmly what he calls Wundt's *Behauptungsmethode*, and insists that a sufficient explanation can be reached without going beyond the facts actually present in consciousness. *Literaturbericht*.

Baldwin, James Mark. *Thought and Things*. Vol. II: *Experimental Logic, or Genetic Theory of Thought*. London: Swan, Sonnenschein & Co.; New York: The Macmillan Co. 1908. Pp. xv + 436. \$2.75 net.

Becher, Erich. *Philosophische Voraussetzungen der exakten Naturwissenschaften*. Leipzig: J. A. Barth. 1907. Pp. viii + 243. 6.50 M.

Buttel-Reepen, H. v. *Are Bees Reflex Machines?* Experimental contribution to the natural history of the honey-bee. Translated by Mary H. Geisler. Medina, Ohio: The A. I. Root Co. 1907. Pp. 48.

Coignet, C. *L'énergétique et le mécanisme au point de vue des conditions de la connaissance*. Paris: Felix Alcan. 1908. Pp. 181. 2.50 fr.

Grasset, J. *Introduction physiologique à l'étude de la philosophie*. Paris: Felix Alcan. 1908. Pp. xi + 368. 5 fr.

Hebberd, S. S. *The Philosophy of History*. Revised edition. New York: Maspeth Publishing House. 1908. Pp. 307.

- Rageot, Gaston. *Les savants de la philosophie*. Paris: Felix Alcan. 1908. Pp. 179. 2.50 fr.
- Schiller, F. C. S. *Plato or Protagoras?* Oxford: B. H. Blackwell; London: Simpkin, Marshall & Co. 1908. Pp. 31.
- Tear, Daniel Ambrose. *The Logical Basis of Educational Theory from the Standpoint of "Instrumental" Logic*. Chicago: The University of Chicago Press. 1908. Pp. 58. 53 cents net.

NOTES AND NEWS

THE Clarendon Press has begun the publication of the works of Aristotle in English with the "Parva Naturalia," translated by J. I. Beare, Regius professor of Greek in the University of Dublin, and G. R. T. Ross, lecturer on philosophy and education in the Hartley University College, Southampton. The following statement is from the publishers' prospectus: "It was the desire of the late Master of Balliol, Dr. Benjamin Jowett, as formulated in his will, that the proceeds from the sale of his works, the copyright in which he bequeathed to Balliol College, should be used to promote the study of Greek literature, especially by the publication of new translations and editions of Greek authors. In a codicil to his will he expressed the hope that the translation of Aristotle's works begun by his own translation of the 'Politics' should be proceeded with as speedily as possible. The College resolved that the funds thus accruing to them should, in memory of his services to the College and to Greek letters, be applied to the subvention of a series of translations of the works of Aristotle. Through the cooperation, financial and other, of the Delegates of the University Press, it has now become possible to begin the realization of this design. By agreement between the College and the Delegates of the Press the present editors were appointed to superintend the carrying out of the scheme. The series, of which the first instalment is now brought before the public, is published at the joint expense and risk of the College and the Delegates of the Press. The editors have secured the cooperation of various scholars in the task of translation. The translations make no claim to finality, but aim at being such as a scholar might construct in preparation for a critical edition and commentary. The translation will not presuppose any critical reconstitution of the text. Wherever new readings are proposed the fact will be indicated, but notes justificatory of conjectural emendations or defensive of novel interpretations will, where admitted, be reduced to the smallest compass. The editors, while retaining a general right of revision and annotation, will leave the responsibility for each translation to its author, whose name will in all cases be given. Translators have been found for the 'Organon,' 'Physics,' 'De Cælo,' 'De Anima,' 'Historia Animalium,' 'De Animalium Generatione,' 'De Insecabilibus Lineis,' 'Metaphysics,' 'Eudemian Ethics,' 'Rhetoric,' and 'Poetica,'

and it is hoped that the series may in course of time include translations of all the extant works of Aristotle. The editors would be glad to hear of scholars who are willing to undertake the translation of such treatises as have not already been provided for, and invite communications to this end."

Nature of February 6 notices the Columbia University "non-technical" lectures as follows: "At the anniversary dinner of the Royal Society on November 30 last, Lord Dunedin bewailed the fact that few men of science make any attempt to describe their investigations in language which can be understood by men of culture without special scientific knowledge. This speech . . . gave rise to a correspondence in the *Times*, in which the advantage of increasing interest in scientific work by making the results as widely known as possible was insisted upon in many quarters. A similar necessity has been recognized in America, and an attempt is being made at Columbia University to provide literature of the kind required. The Columbia University Press has arranged to publish in the form of pamphlets a series of twenty-two descriptive lectures in non-technical language of the achievements of science and modern scholarship. We have received copies of the first two pamphlets; the first, on mathematics, is by Professor C. J. Keyser, and the second, on physics, by Professor E. F. Nichols. A doubt may be expressed as to whether the language of these lectures will be simple enough for the public for whom they are intended. The pamphlets partake largely of the character of the Royal Institution lectures, reprints of which are often available in this country, and contain terms and ideas which, though simple enough to the reader with some training in science, present difficulty to the student whose education has been chiefly on literary lines. It will be interesting to learn later the extent of the encouragement received by the Columbia University Press. The price of the pamphlets is in every case to be twenty-five cents."

THE third international congress for the History of Religions will be held at Oxford, September 15-18, in quarters provided by the University. There are to be eight divisions: 1. Religions of the lower civilizations, including Mexico and Peru. 2. Religions of the Chinese and Japanese. 3. Religions of the Egyptians. 4. Religions of the Semitic races. 5. Indian and Iranian religion. 6. Religions of the Greeks and Romans. 7. Religions of the Germans, Celts, and Slavs. 8. The Christian religion. The price of a member's ticket is £1, of a lady's ticket, 10s. The languages used will be English, French, German, and Italian. Communications and inquiries may be addressed to J. Estlin Carpenter, 109 Banbury Road, and to L. R. Farnell, 191 Woodstock Road, Oxford.

At the recent annual meeting of the Southern Society for Philosophy and Psychology, at Washington, D. C., the following officers were elected for the year 1908: President, Professor J. Macbride Sterrett, George Washington University; Vice-president, Professor Albert Lefevre, University of Virginia; Secretary-treasurer, Professor Edward Franklin

Buchner, University of Alabama. Additional members of the Council: to serve one year, Professor A. Caswell Ellis, University of Texas, and Professor Edgar J. Swift, Washington University; to serve two years, Dr. William T. Harris, Washington, D. C., and President D. B. Purinton, West Virginia University; to serve three years, Professor J. Mark Baldwin, Johns Hopkins University, and Mr. Reuben Post Halleck, Boys' High School, Louisville, Ky.

It is announced that an International Positivist Congress will be held at Naples on April 27. The program will consist of two parts, one devoted to the elucidation of positivist principles, the other to their applications to the problems of psychology, ethics, pedagogy, comparative theology, etc. Among those who have promised to read papers are Professor Haeckel, Professor Lombroso, M. Yves Guyot, Professor Villari, and Lord Avebury.

DR. JOHN B. WATSON, assistant professor of experimental psychology at the University of Chicago, has been appointed professor of experimental and comparative psychology at the Johns Hopkins University, where he succeeds Professor George M. Stratton. At the same university Dr. Edward F. Buchner, professor of philosophy and education in the University of Alabama, has been appointed professor of education and philosophy.

PROFESSOR JAMES WARD delivered the first six of the Gifford lectures for 1907-8 at the University of St. Andrews, December 7-17, on the subject "The Realm of Ends." The topics of the lectures were "Introductory," "The One and the Many," "Pluralism," "The Contingency in the World," "Evolution as Epigenesis and Equilibration," "The Goal of the Higher Life."

PROFESSOR JULIUS KAFTAN, of the University of Berlin, has published three addresses under the title "Drei akademische Reden," and treating of "Die Lehre Kants vom Kategorischen Imperativ," "Der ethische Wert der Wissenschaft," and "Die Einheit des Erkennens."

A COLLECTION of the letters, poems, and the as yet unpublished literary remains of David Friedrich Strauss will be exhibited in the Schiller Museum, at Marbach, this summer in commemoration of the one hundredth anniversary of Strauss's birth.

HENRI POINCARÉ has been elected a member of the French Academy.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

RIBOT'S THEORY OF THE PASSIONS¹

CLASSIFICATIONS of feelings present peculiar obstacles, and perhaps no attempt as yet has met with even a fair degree of success. The most approved general step was that of James, who somewhat ruthlessly set aside all elaborate classifications as useless, indeed, even positively bad. The new sensational or cognitive character, however, to which affective life seemed ultimately reducible on his scheme, though admirable indeed in that it affords a single fundamental basis for classification, yet somehow does seem to fail to take into account all one means by feelings. The latest attempts to adjust this theory, those of William McDougall and of Judd, show how difficult such a task is. It is noticeable also that relatively slight attention is paid to this phase of mental activity in these treatises.

I have attempted before in this JOURNAL² to report one rather elaborate proposed classification. Geiger conceives that some concept of a feeling element in affective consciousness similar to the useful sensation concept in intellectual consciousness must first be formulated. From this he thinks by proper elaboration one can construct a logical and at the same time a phenomenalist classification of all kinds of feelings which will furnish the much-needed clarity to discussions, and offer direction for further investigations. This is an elaborate scheme, like many others of its kind which have been proposed. It is in principle and avowedly opposed to the James theory, and has apparently met with slight approval. It sounds too logical and schematic, perhaps.

Ribot, however, is apparently not interested in methodology quite so much for its own sake. He rather seeks to emphasize the unrecognized importance of affective life for psychology. The importance and the fruitfulness of more systematic psychological work with these affective factors of experience bring forth the treatise here in question. Those who have read his "*La logique des sentiments*,"

¹ "*Essai sur les passions*," Th. Ribot. Paris: Felix Alcan. Pp. vii + 192.

² Review of Geiger's "*Bemerkungen zur Psychologie der Gefühlselemente und Gefühlsverbindungen*," Vol. II., p. 101.

"La psychologie des sentiments," and particularly, in that it, too, is a somewhat specialized treatment, the "*Essai sur l'imagination créatrice*," will quickly recognize the general purpose of the "*Essai sur les passions*." Ribot does not construct nor is he interested in any purely logical or methodological scheme, nor does he follow James. He here selects from all manifestations of affective life those experiences which seem to have some pervasive organic reference, some genealogy in one's psychological growth, and some decisive function in developing striking personality. I shall report the work as a whole before adding further comment.

Ribot's purpose is (1) to fix upon with precision the characteristics of and the elements which constitute the "passions"; (2) to trace the primitive motor tendencies in which they originate, and to show how these changing varieties of movements parallel varieties of feelings; and (3) to discover how and why they issue in definite affective states. As in his study of the creative imagination, the author seeks to enlarge the circle of observation to include manifestations of feeling hitherto not included in general psychological treatises. Introspective observation and experimentation do not suffice for a psychology of the feelings.

Chapter I. Psychologists have in their treatises devoted comparatively little space to feelings, have conceived them as pathological affectations, have merely enumerated names in their classifications, have attempted to explain all by one law (Bain, James), have confounded feelings and emotions, have been contented to say that they can not be subjected to precise treatment, or have even often neglected them entirely.

Affective states proper, emotions, and passions must mark different types of mental states. Affections are feeble or moderate intensities of "appetites" inherent in our psychophysical organism, demands of nutrition or exercise of organs, or even esthetic or religious aspirations. Emotions are states aroused by some loss of equilibrium, sudden reaction or shock, such as anger, joy, or tenderness. Intensity and brevity are the attributes of such states. The passions are characterized, on the other hand, by their relative duration and stability. Here an idea or an image predominates, "*la passion est une émotion prolongée et intellectualisée*." The passions are hence states to be contrasted with the emotions, being both secondary, complex, and, to a certain extent, artificial, though also chronic rather than acute mental symptoms.

There are internal and external causes for the passions. The external are inversely proportionate in influence to the internal, the power of predisposition. Passions are chiefly latent, just as are the vocations of men which they later call forth. Other external

influences are imitation and suggestion. The internal influences, such as physiological constitution, individual temperament, or personal character, are the only true and profound causes of passions. The types seen are the sentimental, the passionate with one life passion (Mirabeau), or, again, those who possess one passion exalted, like a fixed idea in intellectual life, to the under-estimation of others.

The causes of passions are difficult to discover. They must not be explained by the unconscious or subconscious storing away of influences, except as to their origin. The three attributes pertaining peculiarly to a passion are its relations to the fixed idea, its duration, and its intensity. The author, citing great differences of opinion, is inclined to agree with Janet that the passion state rather than the fixed idea is the original controlling factor. In regard to its duration, we must not confuse impulsive emotions with passions, which latter endure for life or for years or for months, as the case may be. The intensity in passions is not always so evidently present as in emotional and appetitive states; it may be dynamic, as in an arrest of movements, energy resting in a state of tension. Impetuous desires, etc., of savages and children must not be confused with passions proper. This real passion aids both proper association and pertinent elimination, thus, by clarifying the dominant idea, further differentiating itself from other kinds of affective states. Further intellectual service it renders in stimulating all activities of creative imagination; when dynamic, by bringing forth expression in arts, poetry, etc.; when static, by finding expression in science, commerce, and mechanical arts. Indeed, "*imagination est surtout affective.*" Likewise, there is in passion an intrinsical, inherent logical function, the "*judgment of value.*" These passions can even be ramified into syllogisms, though it must be remembered that their rational is their incidental characteristic. This character is finality. Besides this all constructive reasoning, a creative faculty, is indirectly dependent upon passions. Likewise, volition in all its manifestations is related to existing passions: the impulsive, where the motor element is strong, to dynamic passions; the obstructed or arrested, where the intellectual element is prominent, to static or inhibitory passions. Love is generally of the first, ambition of the second, type of passions.

Chapter II. Here the genealogy of the passions is considered. There is no physiology of the passions which suffices to explain them. The James-Lange theory is overworked. Each passion proper has its own biological substratum. The progress of detailed work in finding physiological conditions for all sensational and intellectual activities is not paralleled by similar work on the passions. The conditions here are not simple. They affect the whole organism. Hunger (nutritive), sexual love (organic), the more intellectualized

love of money (the individual expansion or need of spontaneous activity) are typical passions. The nervous excitement which exercise alone can calm is the physiological condition. In whatever life activity impulsive outgo of muscular response obtains for one of the two kinds of passion, and arrest of movement for the other.

The four sources of origin, thus, in organic tendencies to action are:

1. Motor tendencies which preserve the individual.
2. Motor tendencies which preserve the species.
3. Those which contribute to the affirmation of one's feeling of personal power.
4. Those which are as various as the individuals whom they possess, such as the esthetic, scientific, or religious passions.

The passion for gormandizing, subject as all other psychic characteristics to the laws of recapitulation and of evolution, may be found in young or old, high or low life. In love, the manifestation of passion in the affective life, three stages can be distinguished, marking the steps in its complete evolution. These are the instinctive, the emotional, and the intellectualized.

The other two significant sources of origin are not so simple as the above organic and sexual activities. The tendency to individual expansion through the innate demand for activity arouses, through sympathy or conquest or destructive tendencies in turn, the passions first of pity, second of desire for the novel or difficult or dangerous (Columbus's passion), and third those of intrinsic, not accidental, destructive tendencies, of which last class antipathy is typical and fundamental.

Of the second group, joy as a passion, not as an impulsive emotion, has been neglected entirely by most authors. Joy comprises the desire for gain, the inclination to risk, the hope of some kind of individual profit, and the attraction toward the mysterious. Here the energy is dynamic, while in the passion of ambition or avarice, into which joy often develops, the state is in chief part that of potential energy in abeyance. Each passion has naturally different psychological constituents, the intellectual elements predominating in these latter examples.

The third class, passions of antipathy, should have emphasis equal in importance to that Adam Smith has ascribed to the first class, sympathetic passions. These develop from the organic, through the instinctive, to the temperamental proper, in which the passion of hate is engendered. It is physiologically made up of static tendencies to repulsion and of dynamic tendencies to destruction, each intermittently occupying the forefront. Anger is its crisis, and vengeance its final issue. Contrary to Bain, wrath is not the

genus of which hate is the species. Vengeance is not a passion, but the fulfillment of a passion. Likewise, jealousy is not a species of which hate is the genus. It has an entirely independent origin, based on the love of possession, and is composed of heterogeneous elements. Falsely so-called jealousies of animals and infants are merely discontinuous emotions. Passions develop only with the intelligence or consciousness of the objects and the end.

Chapter III. The rarer passions of which this chapter treats present more difficulty as to their genealogy because of their vaguer origin, their complexity, and their social and less personal character. These are the esthetic, the religious, and the political passions, and certain derived types which show peculiar, even freakish, deviations.

The esthetic passion, not to be confused with esthetic emotions, is a rare possession. Its source is in superfluous life activity. It is the classic grand passion. The esthetic activity has its own absolute freedom as its only end. This activity is most engrossing and superior to all others. This is why it so easily exhibits pathological symptoms. The passion for science is, on the other hand, the exclusive and essential passion for orientation in discovery. This passion is hence often static, showing inhibitory functions in operation; but in banishing traditional scientific or theological errors it becomes dynamic or combative.

The religious passion may be contemplative (individual), manifesting itself in mysticism or in asceticism, or it may be active (social), acting through persuasion or force. In mysticism it becomes a kind of Platonic love; in asceticism it is on the order of Spinoza's intellectual love, absorption in infinity, beatific vision. The active religious passions are more complex, made up of ardent altruistic tendencies "to save souls," of tendencies for fuller self-expansion, and of tendencies to brave all hazards, which last is similar to the passion of explorers. The combative religious temperament (Calvin) has no positive form. It implies the above tendencies in an unfortunate combination. In short, here as in all passion we have a concentration of psychophysical activities which oppose all ideas and temporary feelings which may in the several cases present obstacles.

The political type of passion, originating in the instinctive tendency to live in groups, tardy in appearance in the history either of individuals or of humanity, is a compound of personal ambition and social patriotism, above analyzed by the author. Here, as everywhere, Ribot is careful to eliminate the spasmodic, short-lived emotions; Carlyle's feeling in regard to the French Revolution, for example. Two real types can be distinguished, that of the realists and that of the idealists, the former being the more frequent.

This combines the passions of personal aggressiveness (*la volonté de puissance*) and those of ambition, sometimes, as in the case of Cromwell, directed toward an impersonal end. A fixed idea and tenacious energy characterize these tendencies. The passion of the political idealist is on the mystic order; never, as in the passions of love, avarice, and ambition, individual, but necessarily social and progressive to the point of sacrifice of individuals. It results in political suicide, dying of its own accelerated tendencies to progressive movement. These suicidal tendencies are illustrated in the patriotism passion, which, however, is simpler and entirely opposed to political passions proper, in that it is exempt from personal ambition. It is the social individual's gregariousness, originating in the social instinct for preservation of the body politic.

Besides these there are moral passions which must be transformed, to be efficacious, into religious ones. There are also smaller passions, smaller as to matter, but so fixed, so violent, that they really are grand passions. The passions of collectors of various types are here enumerated. These are governed by the tendency to accumulate exclusive possessions and to develop by exercise in activities as non-utilitarian as those which the esthetic passion exhibits. The origin of these freakish passions is obscured in the process of civilization making, a sort of by-product of the affective life, representing some combination of the passion of possession and the passion for esthetic expression.

Thus far the author has traced the general source or origin of the passions. He now faces the problem: Are there other sources of origin? Can an emotion produce a passion, as is so commonly asserted by psychologists? He thinks not. Emotions are unstable, passions are characterized by stability. A sudden state of anger does not make an irascible temperament, nor joy an optimist, nor sadness a melancholiac, nor does even the repetition of these emotional shocks; they rather do not exhibit the tendencies which engender passions and at most are only occasionally present at the same time. The irascible man is not the fighter, usually. Emotions represent acute crises, and can hence scarcely become chronic affective characteristics, though they may prove to be the first revelations of the more profound and chronic malady.

Chapter IV. Clearly, ambition does not develop as does love, nor avarice as fanatical political passions. The evolution of all, however, is slow, and the embryonic stages in subconscious and unconscious tendencies to action render their growth to fruition entirely unlike the sudden and temporary life of emotion. The passion is not a creation *ex nihilo*, nor any reaction to "fugitive phenomena." The passion is disengaged from the turbulent elements

which give rise to emotions, is more constitutional. The passion of maternal love illustrates this.

Passions may become extinct in different ways: by exhaustion through usage, by being transformed into another passion, by substitution, by insanity, or by death. The general rule for the ending of passions may thus be stated: "La probabilité d'extinction d'une passion est en raison directe de la quantité d'éléments émotionnels et en raison inverse de la quantité d'éléments intellectuels qu'elle contient à l'état systématisé." As a rule, the static passions, exhibiting more inhibitory tendencies, are more stable than the dynamic. They all change with the variations in the "fixed idea," which in turn is an indication, not a cause, of the change.

The first type of passion extinction depends upon weakened mentality and lessened excitability of the nervous system in old age. In emotions the excitability is diffuse and intermittent, while in the passions it is physiologically localized and psychologically specialized. They represent a condensation of the personality under a unique and preponderating form. A "siege of the passions," though in every case different, representing an aggregate of psychic units, has necessarily a physical and cerebral substratum, and a "localization and active coordination center whose synthetic unity is the passion." It seems probable that there is for them some continuity of central excitement, without which the stability and reappearance of the fixed idea could not be explained. After a while this continuous drainage can not be compensated for, and hence excitability, the condition for the existence of the passion, must disappear. Then ensues incapacity of nervous elements to act, just as they are also anesthetic. Apathy or even aversion may follow. Sexual love or the *secheressé* of the mystics may serve as illustrations. Further, habit may affect a superficial, but never a profound passion. This brooks no such obstacles. Religionists to the contrary, no sudden emotional shock can stop passions. They are of the fiber of individuality itself. Only a shock sufficient to affect such a change suffices to kill the passion.

Can they, then, be changed into other passions, our author asks, either by transformation or by substitution? The transformed passion is grafted on to the same source as the original which it displaces, human love into divine love, or sexual into Platonic, or men passionate for good into great criminals, etc. Two conditions, neither sufficient alone, together effect such changes, viz., a surplus of vital energy to dispense which requires orientation and a new directive idea. The original passion is the same under a different mask. Or, again, the original idea may remain and the tendency toward its object may become aversion instead of attraction, love

becomes hate, love of pleasure becomes asceticism, etc. All these represent a change in the judgment of value, not the more profound change in the underground passion.

Substitution, a replacement of a passion by one totally different in origin, is still rarer in occurrence. It is not sufficient to speak of the characteristic passions of childhood, youth, manhood, and old age as being cases in point. Passions, we have seen, must have had somehow their slow incubation period. Most cases of apparent substitution will not bear close scrutiny. The individual affective life itself, indeed, often exhibits not only different, but opposing and contradictory tendencies to action. Here the turbulent life of coexisting passions finds several different directions, such as we see in the life activities of Byron, Cæsar, Napoleon, and Rousseau. Here, indeed, the ruling passion at one time may for complicated psychological reasons give place to another ruling passion, which all the time, however, has been struggling in abeyance, not in any sense hence artificially grafted on to utilize surplus energy formerly directed elsewhere. Passions of this type are as little understood as they are rare, and afford a rich field for investigation.

As to passions of the next type, those that issue in madness, it is necessary to inquire, first, whether passions can be distinguished from pathological states, and what they have in common. As it is difficult to describe a normal body, so it is more difficult to describe a normal consciousness. The difficulty reaches its maximum when we attempt to speak of the normal affective life. Perfect adaptation of the individual to the conditions of his environment has been proposed as a test. Now passions have been criticized chiefly from a teleological point of view, and instincts from a mechanical. Passions exhibit errors, but instincts sin thus also. Considered entirely with reference to their plasticity to external environment, passions are more nearly related to insanity. But in relation to their invariable accompaniments, the fixed ideas, they are often useful; they create. Psychologically these states of mind are, unlike insanity, characterized by a consciousness of the possession of the passion. Neither do passions *per se* exhibit hallucinatory elements. In short, passions have no specific character which is never evident in insanity, but as in all so-called normality they must be judged "*par un ensemble complexe de caractères.*" Students of mental pathology have not sufficiently distinguished passion and emotion symptoms. In any case the complete identification of passions and insanity is unacceptable. If they are maladies they should somehow appear in offspring. Their imperfect classification makes such investigations into heredity impossible as yet. Without experimental or statistical evidence it is probable that avarice or the passion for collecting might in later

generations appear as kleptomania. To decide further as to whether passion is *per se* morbid, one must inquire whether it is profitable for the individual, whether it enhances his ability for skillful and speedy adjustment to the world. What is its biological value? Its positive or negative biological value clearly depends upon one's view of life. It surely "polarizes consciousness," causes rupture with custom, and almost inevitably forms a partial character. It is, however, or may be, "anormal" without being pathological. One is possessed, but one is not insane. There is no absolute answer.

The last type of passion termination is in death itself. This fatal issue may come about in two ways, one where the passion leads to death without the accompanying clear realization of the fatal issue, as that of the glutton, or the artist, or the scholar; or where death as its consummation is fully realized, as in suicide, or open murder, or particularly the growing numbers of cases of double suicide of lovers, where gaiety characterizes even their gruesome preparation. It is so with ambition. Of the one hundred and nine imperial emperors of Rome only thirty-four died from natural causes.

The other type of passion terminating in death may be illustrated by the patriotism of soldiers, and the religious passions of martyrs and of missionaries. The passions here are impersonal and imperative. The idea at the bottom of these passion beliefs is social, "generalizable," entirely unlike those of the love passion, or the ambition, or the jealousy kind.

To summarize, the normal form of consciousness is to be diffuse, to exhibit various, numerous, and interrupted or discontinuous states; the condensed, concentrated, and simplified is the exception. The passion is the affective equivalent of attention and stable volition. The grand passions mark the culminating point in the life of feeling, the point of maximum energy, intensity, and permanence, irresistible in its effects. The geniuses in passion are even rarer than the intellectual geniuses. Let us also not forget that pure passions are composed of affective, motor, and intellectual elements, and that their importance must be measured by the functioning of these three factors, the union of which makes them powerful and constant. They appear and disappear from the focal affective stream just as do perceptions, images, and reasoning in the intellectual sphere. The passion, unlike the emotion, which is specific, is, from the point of view of evolution, individual. Individuality is itself a product of the activity of that form of imagination which owes its origin to a true passion. Unlike the emotion, too, the passion has its past and its future life, though these memories are necessarily not of things represented. They are further constituted

by their own peculiar images, and for the most part are the work, not accidentally of nature, but spontaneously of man.

The work thus reported needs little comment. The author presents his material, which he has drawn from varied sources, pleasingly and with force. He is never dogmatic as to his classifications, never unreasoning in his criticism of others, and always bent upon making his steps clear. His great emphasis upon the fact that there is a law of passion, a need for clearer differentiation of differing affective states, a possibility for fruitful research in this aspect of conscious life, and a hint that feelings are not necessarily pathological, will be welcomed doubtless by all workers in this particular field.

His criticism of clinical pathology is suggestive, showing how vague and necessarily unworkable any present method of diagnosing affective disorders must be. This is but another means he adopts to emphasize the need for more intensive psychological work upon the feelings.

As some reviewers have already noted, and as all critical readers of his work will probably feel, Ribot has to a certain extent unwarrantably allowed a quantitative distinction to appear later in his discussion as a qualitative one. He marks off first passions as distinct by reason of their characteristic intensity, duration, and stability. He ends in having produced the impression upon the reader that qualitatively different phases of affective life are distinct. The men of passion are in a class to themselves. Passions to be "pure" must be freed from emotional aspects. Emotions must not even function in developing passions. Out of instincts and impulses they arise in their pure organized form. It would, perhaps, be nearer the truth and represent more consistently a strictly psychological and genetic point of view to consider all affection qualitatively in the same category, differing in the various manifestations only quantitatively. There can no more be a fixed demarcation line between the possessors of passion and those who do not have such feeling possibilities than there can be such a clear division of the geniuses and the moderately well equipped sane intellectual individuals. Perception or conception activities, however poorly chosen names for processes they may be, do not exhibit one law in the one and another kind of behavior in the other class. They develop from the spasmodic and ill-adapted to the more stable and organized mode of functioning. There seems to be a similar life for feelings. We "waste energy" in "emotional living" by disorganized action inevitably before concentrated and organized and "intellectualized" life of passion can be perfected. Ribot's remark that men of passion ordinarily are not hampered by frequent emo-

tional backsets, rather than proving that emotions and passions can be qualitatively distinguished, would seem to point to the more natural conclusion that poorly organized affective life has really developed into the more nearly perfected or pure type. This is criticism of a minor point, however, which is in no way intended to reflect upon the high character of the whole treatise. It may serve to call attention to the probable reason why many will not care to accept the particular genealogical structure of Ribot, while in the main agreeing with the author that there is one, and that this possibility offers a most fruitful and interesting field for investigation.

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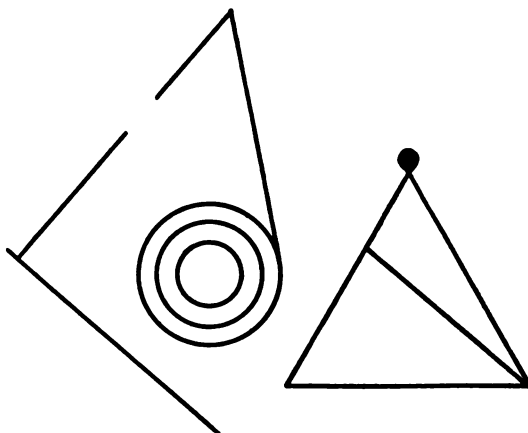
THE THRESHOLD OF RECTIFIED PERCEPTION AS A CLINICAL TEST

SOME illusions which occur at the beginning of perceptions persist more or less constantly as long as the perceptions are continued or repeated, whereas others disappear after a time when greater familiarity has been had with the stimulus. In the latter cases, where the rectified perception becomes normal, the initial illusion may be wholly lost sight of and only by recourse to the untrained subject may the illusion be determined. Such a temporary illusion is the one described here, and the accompanying experimental results indicate a use which may be made of it in clinical tests.

The conditions of the experiment were these: the subject was seated at a table, pencil in hand and paper before him, and was told to observe a chart (see Fig.) which was about to be exposed, and upon its again being screened, to draw what he had seen. The exposure was of two seconds' duration, and the chart was eight feet from the subject's eye. If the subject had perceived the concentric circles as a spiral he was provided with fresh paper and a second exposure made. Thus the exposures were repeated until the subject perceived and drew the circles. The measure of the threshold of rectified perception is the number of exposures. The triangle is introduced into the figure in order to distribute the subject's attention.

Two other tests were made. The first of these was for facility in adding a column of eleven digits. The second was for facility in recalling that letter which, in alphabetical order, comes before each of seven given letters. The letters given were *g, p, s, u, i, b, o*.

These controlled association and adding tests were given to all the subjects of the original experiment. The results are tabulated below,



The figure is two thirds the diameter of the original chart.

together with the combined college grades of the subjects, all of whom were my students, for the preceding two months.

TABLE				
Subject.	Exposures in 1st test.	Adding. sec.	Association. sec.	College grade. Per cent.
1	4	14	60	72
2	8	11	67	83
3	10	13	43	87
4	1	16	18	82
5	3	7	35	89
6	1	20	20	89
7	4	17	85	90
8	1	7	15	91

If the subjects are divided into group one, those who perceived the circles as such at the first exposure, and group two, those who perceived the circles as a spiral, we find no direct correlation between the results of the adding test and the results of the illusion test in the two groups. But the results of the association test show a marked positive correlation with those of the illusion test. The average time in the association test was, for group one, 17.6 seconds, average variation 1.8 seconds; and for group two, 58 seconds, average variation 15.2 seconds. The average college grades are, for group one, 87.3, average variation 3.4; and for group two, 84.2, average variation 5.4.

If a clinical use is made of such an illusion as this to determine the threshold of rectified perception, some better arrangement of the figure may be found, and the conditions should be corrected for abnormal vision. My own subjects all responded normally, showing little variation *inter se*, to the Snellen alphabet vision tests.

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DISCUSSION

CONSCIOUSNESS AND RELATIVITY—A REPLY TO
PROFESSOR BODE

IN an article on "The Problem of Objectivity"¹ Professor Bode has been good enough to submit a criticism of my paper on "Contemporary Realism and the Problems of Perception."²

In the present paper I shall attempt to answer several of the more trenchant objections urged by my critic.

1. I find myself unable to appreciate the cogency, or even the meaning, of Professor Bode's first objection (pp. 151-152), which is to the effect that the realist in admitting that some objects may exist independently of consciousness is logically compelled to admit that all objects, even feelings and emotions, may enjoy a similar independence, and I pass it by the more readily because of the critic's acknowledgment that if consciousness itself could be proved to him to be something truly objective, his objection would cease to apply.

2. But consciousness, Professor Bode continues, can not be anything objective, and, more particularly, it can not be the form of potential energy with which I have identified it, because "quality plus a form of potential energy can be regarded as equivalent to sensation only on condition that the potential energy be found identical with some element actually present in the sensation. . . . Analysis seems able to discover but one element besides the quality, viz., our old friend abstract awareness" (p. 152). To reply adequately to this objection it would be necessary to state once more all of the striking resemblances between what from without and inferentially is described as potential energy and what from within is directly known as sensation. I must content myself with reminding Professor Bode of only three of these resemblances: First, in addition to the quality and the awareness which he finds in sensation, there is *intensity*, which for some reason Professor Bode completely overlooks; and as the intensity of a sensation bears a relatively constant relation to the intensity of the stimulus, it looks as though there was something of the same identity between intensity of stimulus and intensity of sensation as that between the intensity of the velocity of a moving object and the intensity of the stress into which that velocity is transformed when the moving object collides with a fixed elastic obstacle. Again, the relation between

¹ This JOURNAL, Vol. V., p. 150.

² This JOURNAL, Vol. IV., p. 374.

intensity of effort and intensity of the resulting muscular movements bears a curious resemblance to the relation between the intensity of stress in a bow and the intensity of the velocity with which the arrow leaves the bow. Second, in addition to the intensity factor which sensations and stresses possess in common with one another and in common with the kinetic energies which are their causes and effects, there is the attribute of polarity, or subject-object duality, which is one of the most notable *differentiæ* of even the simplest psychical states. It is interesting to note that when kinetic energy passes into a potential condition of stress a quite analogous duality or polarity overtakes it. For forces always exist in couples. A stress never stays a stress except so long as it is balanced by an equal and opposite stress. And just as it would be impossible to have a subject without an object, an awareness that was not an awareness of something, so would it be equally impossible to have a stress continue unbalanced by an opposite stress. Third, the times and conditions in which a sensation occurs happen also to be the times and conditions in which the kinetic energy of a neural current is, at the moment of its redirection, transformed into potential energy. Now these three resemblances may not be sufficient in themselves to prove the hypothesis that sensation and potential energy are identical, but they should certainly not be passed over in complete silence by one who undertakes to criticize that hypothesis.

3. I am afraid that I do not understand the purport of Professor Bode's final criticism of my conception of consciousness (pp. 153-154), except in so far as it may be summed up in the following passage: "We are apparently confronted with a new form of the old problem of how from various units or fragments to constitute the concrete unity of our conscious life" (p. 154). To this I would reply that the identification of the field of consciousness with the field of potential energy set up in the nerve centers³ of the brain seems to me to provide an excellent basis for understanding the peculiar unity which pervades and dominates the manifoldness of a psychosis. The self conceived as a system of interconnected stresses is as unlike as possible to Hume's disconnected "bundle of perception" with which Professor Bode compares it. The different elements of such a system of stresses bear the same indissoluble relations to one another, and consequently exhibit the same indivisible unity, which consciousness reveals to itself. Hence, I can see in this connection, not an objection, but only a further reason in favor of the identification of the two types of system.

³I need hardly remind the reader that "move center" (occurring in Professor Bode's quotation from my article) is a misprint for "nerve center."

The last part of Professor Bode's paper is a criticism of the doctrine that physical objects owe all their properties to their relations to one another and to the entire cosmic system of which they are members. Of the several acute objections which Professor Bode brings against this conception, I select for discussion the two following:

(1) "If," writes Professor Bode (p. 155), "a given object is 'in itself' simply the resultant of its appearances from all possible view-points, then the judgment that it is 'really' square signifies that squareness is the particular appearance which harmonizes all the divergent perceptions as to its shape. . . . Since, however, the apparent shapes of every object are literally innumerable, there seems to be no particular reason why different standards should not be employed by different persons or by the same person at different times . . . so far as knowing goes, we seem to be forced back to the view that the nature of the object is indeterminate, that it can be all things to all men, and that truth and error is a meaningless distinction." Taking these points in the reverse order to that in which they are presented, I answer first, that error consists always in taking as a universal something that is true only as a particular. Yonder object is truly an ellipse in its relation to my present position in space. I err when I assume that it is similarly elliptical with reference to all other points of view. Secondly, the seemingly indeterminate and self-contradictory nature of objects, which Professor Bode believes to be a result of my conception, vanishes when we remember that diverse and opposite properties of objects pertain to them only with respect to the diverse and opposite relations in which they stand. The same object can be hot to me and cold to you, square to me and oblong to you, without any contradiction or indeterminateness. What kind of an object would it be, forsooth, which remained completely unaltered by the relations in which it stood? An object is not all things to all men, but rather is it a somewhat different thing to each different man. Its true and entire nature consists of the totality of its various aspects properly discriminated from one another. Of what else could it consist, and how otherwise could we know it? Thirdly, as to the reason why we pick out some one of the aspects of an object as a more real, or a more intimate and intrinsic, part of its nature than other aspects—it is much the same reason as that which leads us to take the mean of a number of observations or measurements—being most nearly harmonious with all of them it is least likely to be due to the peculiarities of any one of them.

(2) The second of the two principal objections of Professor Bode to the theory of relativity he expresses as follows: "If from a given

view-point the object appears to an observer to have a certain quality, what happens to the object when the observer leaves his post and thereby reduces the latter to a mere possible view-point?" (p. 156). I should answer that such qualities as were contributed to the object by the observer *out of his own nature* would vanish when he ceased to perceive the object, while those qualities which had come from the object to the observer and which he had *merely reflected* back to their source would remain. The same sort of problem would arise if we were to look at the landscape through a bit of colored glass, and then remove the glass. The features which the landscape owed to the glass it would cease to have, while those other qualities which the glass merely transmitted and did not confer, would remain. The latter would be more real because more permanent, but the former qualities would have really pertained to the landscape during the time when it was observed through the glass. The determination of the various methods for eliminating the personal equation and introducing harmony and compossibility into the vast concourse of physical qualities presented to us by nature is the business of common sense supplemented by the several sciences.

In conclusion, I can not help reminding Professor Bode that neither the relativity of natural objects nor the relativity of human knowledge is a result of my hypothesis. They had their being before the hypothesis was formed. And so while I agree with my critic that a universe of relativity is in many respects very unsatisfactory, and that in such a universe it is a matter of great difficulty to discover the real and absolute nature of things, I must decline to believe that that difficulty is in any wise aggravated by calling attention to its existence.

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SOCIETIES

SECTION OF ANTHROPOLOGY AND PSYCHOLOGY OF THE NEW YORK ACADEMY OF SCIENCES

REPORT OF THE SECRETARY

A MEETING was held in conjunction with the New York Branch of the American Psychological Association on February 24, 1908. The usual afternoon session was adjourned to hear a lecture by Professor Titchener, at Columbia University, on "The Laws of Attention," in which he discussed the question as to the number

of distinguishable levels of clearness which are simultaneously present in the same consciousness. After a comprehensive review of the literature and a careful examination of the doctrines which hold to three or four levels, the lecturer concluded that there was no real evidence of more than two distinct levels, that of clearness, or attention, and that of obscurity, or inattention. For example, in looking at one of the common puzzle pictures, in which a face is concealed, the moment the face appears to the observer the picture as a whole, which up to that moment had been clear, drops at once into obscurity, and there is no appearance of a gradual fading into obscurity through a series of intermediate gradations. It is true, however, that both at the level of obscurity and, more certainly still, at the level of clearness there may exist slight differences in the prominence of the different elements present. This is illustrated by the differing prominence of the different elements of a rhythm, even though all lie in the field of attention. There may also, as between different states of consciousness, be differences in the level of clearness and in that of obscurity; the narrower the field of attention, the greater is the disparity between the level of clearness and the level of obscurity.

An evening session was held at the American Museum of Natural History, at which the following communications were presented:

Professor H. C. Warren, in discussing "Feeling and Other Sensations," said that the supposed radical distinction between feeling and sensation was supported by three separate claims. (1) *Evidence from introspection*. This is inconclusive. Admitting the vast difference of sort between so-called feelings and visual sensations (*e. g.*), there appears quite as vast a difference of sort between visual, auditory, and other "external" sensations. (2) *Distinction between external and internal elements*. This affords no better criterion. The hedonic tone of a visual sensation (*e. g.*) has just as definite a physical basis as its brightness or color characters. Organic conditions are less clear-cut than external stimuli, but difference in *degree* of clearness is no reason for dividing experience into two elemental *sorts*. Moreover, a distinction based on source should recognize activity experience also. The speaker prefers the terms external, organic, and kinesthetic sensations to a more radical division into sensations, feelings, and activity experiences. (3) *Different genetic roles of presentation and affection*. "External" sensations lead more readily to thought and "knowledge about" things than internal. But this is due to the relative vagueness of the latter. Definite, vivid experiences lead to perception, judgment, reasoning; indefinite, vague experiences lead to nothing be-

yond themselves. Yet any experience, even of discomfort or well-being, may at times become focused in attention and form the basis of a judgment. The distinction between presentative and affective is, therefore, not really based on the nature of stimuli. Intellectual experience is the result of a distinctive mental function which acts (in favorable circumstances) on sensory experiences of any sort.—The three claims for a radical dichotomy of experience are thus found to be unsatisfactory. All simple experience is essentially one in nature.

Mr. Warner Brown reported on his experimental study of "Time in Verse." A large number of graphic records of the voice were made the basis of the report. The material embraced nonsense verses and typical verses of English poetry. The former failed to show any differences of *tempo* between the four common rhythms, and the differences of internal time relations of the feet were not found to be those usually accepted. Syllables in trochees are nearly equal in length, but the accented is shorter. The accented syllable of the dactyl is not longer than the corresponding short syllable of the anapest. If two short syllables are taken as equivalent to one, no sharp line can be drawn between two-syllable and three-syllable rhythms in respect to time. In lines of poetry the conventional alternation of long and short syllables is frequently reversed, leaving the time structure chaotic. The feet approximate equality only in the very simplest verse. There is no regular connection between accent and duration. None of the three-syllable rhythms took the form given by the dactyl in nonsense verse. The general conclusion was that the ear is incompetent to judge, and that the impression of temporal regularity in verse is strictly illusory.

Mr. H. L. Hollingworth reported an experimental study of "The Time of Movement." This report described an instrument designed to record simultaneously and graphically the extent, duration, and force of a rectilinear arm movement. To the car of the Cattell-Fullerton extent of movement apparatus is attached a signal magnet, which controls the vibrations of an enlarged Pfeil time marker. On a smoked paper, stretched on a horizontal frame, the writing point traces the extent of the movement and records the time in twentieths of a second. The interruptions are made by means of a reed oscillator. The car pulls against a set of springs, which are adjustable, so that the force may be varied independently of the extent, but correlated with it empirically. A pulley attachment provides for the use of weights instead of springs. The traditional method of controlling the extent of a movement by impact against an upright is found to cause a large positive constant error

which is a function of the force of impact, and the magnitude of which increases the variable error. When the movement was blocked at one centimeter from the starting-point, the varying speeds, indicated in mm. per tenth of a second, gave the following results:

Speed	68	100	110
Constant error	+ 138 mm.	+ 174 mm.	+ 171 mm.
Variable error	30 "	42 "	41 "

When stopped at two centimeters:

Speed	32	120	138
Constant error	+ 100 mm.	+ 158 mm.	+ 166 mm.
Variable error	24 "	38 "	32 "

When stopped at three centimeters:

Speed	103	155
Constant error	+ 90 mm.	+ 132 mm.
Variable error	24 "	28 "

In order to eliminate this factor a sound hammer, introduced at optional points along the track, serves as a signal for stopping the movement. The movement is thus terminated by the subject himself and becomes a unit, commensurable with any other free movement.

Dr. Adolf Meyer, in discussing "The Concept of Substitutive Activity and the Relation of Mental Reaction Types to Psychiatric Nosology," noted as a characteristic sign of our times in psychopathology, as in other biological and extrabiological domains, the surrender of the quest for the final nature of events in terms of physicochemical materialism. The chase for the noumenon, or *Ding an sich*, has lost its charm. We realize that much of what is expressed in psychology or psychopathology in terms of nerve-cells is pseudo-scientific tautology, the facts on which the claims are based being extraneurological, and the inferences being often enough not only unverifiable, but directly opposed by what we know in terms of nerve histology and nerve physiology. This form of scientific mythology serves its purpose if it stimulates, but it ought not to be accepted as solution. It seems infinitely wiser to reduce events not to static principles, but to *simpler events*, and to study the laws of modifiability of the active factors and of the results. The notion of the "lesion" is helpful where facts are accessible; otherwise, it plays the role of a noumenon. Events are defined by the situation, the reaction, and the final adjustment, and the role played by parts of the event or parts of the mechanism. Abnormal events may be best accounted for by modification either of infrapsychical (simple physiological) or of mental (physiological-psychological) factors. Since the mental events constitute adjustive actions with a scale of effi-

ciency or lack of efficiency, we can distinguish the well-planned act, poorly supported by faulty physiological mechanisms, from inadequately *planned*, inferior reactions; and the latter we designate as substitutive activities, to denote that the fault lies more in the deficiency of the mental adaptation itself than in that of the tool of the same. The advantage lies in the fact that we do not telescope the facts into a schematic artifact devoid of a time component, with a craving for uncontrollable nerve-cell notions, but our attention remains faithful to the field in which things happen. The tendency of an overbelief in the value of noumena is further illustrated in the notion of a "disease," as soon as it figures as more than an empirical unit, satisfying the identification of certain combinations of manifestations, or of some issues of treatment, or not infrequently of a desire for protection against demands of responsibility concerning the outcome. The "disease" notion is hardly conspicuous in the plainest events of pathology, in injuries, intoxications, and even infection, but the nearer we get to the ill-defined, the more the term "disease entity" gets a noumenal overimportance. Consumption used to be a protective term covering up the inefficiency of management of tubercular infection; *dementia præcox* is to-day such a term covering up medical inefficiency in dealing with the so-called deterioration processes. Within their proper field and plainly realized limitations, the maintenance of these noumena has a great advantage for orderly thinking, but, like the neo-vitalistic modes of presentation of biological facts, they would be most detrimental if considered as more than formulas or starting-points of more fundamental work. For didactic and practical work the differentiation of unfavorable developments from harmless or from constitutional recurrent, but non-deteriorating, disorders is equally important for the physician and for the families. Hence the importance of a distinction of *dementia præcox* and manic-depressive insanity. But for progress in the understanding, a constructive knowledge of events has to supersede the purely formal method of what can only be a preliminary grouping, until the pertinent cases can be said to present experiments of nature with clearly known components, traced to simpler events rather than to artificial elements of psychology or neurology.

R. S. WOODWORTH,
Secretary.

COLUMBIA UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

The Ethical Significance of Feeling, Pleasure, and Happiness in Modern Non-Hedonistic Systems. WILLIAM KELLY WRIGHT. *Philosophic Studies of the University of Chicago*, No. 1. Pp. 95.

I. *Introduction.* "During the Middles Ages," Dr. Wright says, "such a question as what significance should be attributed to pleasure in a moral system could hardly have arisen. . . . Pleasure in the modern sense of the term could hardly have been regarded as of much moral value, even if it were not reprobated as indissolubly bound up with the world, the flesh, and the devil." But the Renaissance philosophy was more hospitable to the conception of pleasure; and it is the author's task to trace the function of pleasure, feeling, and happiness in the ethical systems of certain non-hedonists of modern times.

II. *The Perfectionists* (pp. 9-29), Descartes, Malebranche, Spinoza, Leibniz, Wolff, are the first group to be considered. For this whole school "perfection" was the highest good. "Happiness is 'the consciousness of all the perfection of which we are capable.' It is consciousness of perfection *as a whole*, and is *permanent*. Pleasure is consciousness of *a* perfection; it is *finite, particular, transient*." Descartes held that pleasure furnishes the initial spring to action, but that perfection is the end of action. "He thought that in attaining individual perfection a person is obtaining the most pleasure and happiness possible, and at the same time performing his duty." For "the difficulties involved in the combination of pleasure, happiness, and virtue under the conception of perfection have not yet become apparent." Malebranche dwelt more upon the spiritual aspect of perfection, but, like Descartes, he thought that pleasure and duty could be united in the concept of perfection. Spinoza said that there was nothing unique about feeling, that it was distinguished from thought only by being confused—pure thought being clear and distinct. Pleasure and feeling he regarded as valuable guides to action in the attainment of perfection, but perfection, once attained, must be purely intellectual (or rather cognitive) in character. Leibniz regarded happiness as "an active and progressive state in which new degrees of perfection are constantly being attained." With Descartes, but unlike Spinoza, he recognized intellectual pleasures. Wolff, again, reduced pleasure to confused cognition, and opposed it to the rational character of perfection. The reward of perfection, however, consisted for him in happiness composed of pleasures. The difficulty of coordinating pleasure with perfection becomes quite apparent in Wolff.

III. *The British Non-Hedonists* (pp. 30-52) are the second group to be dealt with. The British school perceived more clearly than the continental writers the difficulty of engaging pleasure as the handmaid of virtue. It was an important contribution that they should have defined this problem more clearly than did their predecessors. Two lines of solution were proposed. (1) It was admitted that no human being will follow the good unless he finds some happiness in doing so. The con-

ception of pleasure (happiness meant to the British writers a sum of pleasures) was, therefore, widened so as to include the pleasures of sympathy, benevolence, and the moral sense. Philosophers of this stripe were Shaftesbury, Hutcheson, Hartley, Hume, Adam Smith. (2) Another class, including Butler, Price, Reid, Dugald Stewart, Thomas Brown, reject self-love or the desire for happiness as the only impelling power to right action. They dwell upon other impulses and tend to give pleasure a subordinate place, the later ones teaching that the moral sense is due to original constitution, and that moral judgment is intuitive.

IV. *Modified Perfectionism* (pp. 52-56) is taken up in this section in the theories of Mendelssohn, Tetens, and Schmidt. These writers all devote themselves to the psychological study of feelings and sensations, and place more emphasis on the function of feeling than had been done by the first perfectionists.

V. *Kant* (pp. 57-71). Kant, in working out his doctrine of the categorical imperative, had these two problems to face. " (1) How is a purely rational morality to secure its motivation by the sensible, affective nature of man, and so be carried out in action? (2) What is to be the relation of happiness to the attainment of such a morality?" "Kant answered the first problem by securing the motivation of duty through the pleasures and pains of reverence and interest in the moral law. He answered the second by making a happiness composed of pleasures a necessary ethical postulate, and a constituent in the complete good."

VI. *Several Nineteenth-Century Non-Hedonists* (pp. 72-91). With Fichte, who emphasized so much the fulfillment of duty as the central point in his system, two kinds of pleasure, happiness, and impulse are found, the good and the bad. Happiness does not, therefore, mean to him a totality of pleasures. Hegel, for whom the attainment of rationality and freedom was a gradual process, taught that pleasures and pains were guides to action only in the earlier stages of that process. Schopenhauer, like Leibniz, Kant, Fichte, and Hegel, accepted the Platonic definition of pleasure as being the cessation of pain or discomfort. He worked out the pessimistic conclusion which logically belongs with this assumption. (It is not quite apparent to the reviewer why Schopenhauer is classed as a non-hedonist; for if life can be condemned solely on the ground that its pains outweigh its pleasures, this would seem to be a recognition of pleasure as the highest good.) Herbart: "Pleasure, in Herbart's psychology, is due to the harmonious cooperation of the different ideas, and pain to their disagreement. . . . Such pleasures and pains are often empirical, and involve no *a priori* principles. Consequently, a happiness composed of pleasures merely, without further specification, would not be a proper end of morality." A morality, however, which is based upon the feeling of the beautiful does have the universality and objectivity necessary for a moral end. Lotze teaches: "Sensuous feelings have regard only to the well-being of the individual person experiencing them. Ethical and esthetic feelings, on the other hand, are expressions of the furtherance or disturbance of the universal spirit in us. . . . The highest good is accordingly happiness, or, better, blessedness,

taken in this concrete sense, and recognized as involving the happiness of the universe as a whole, and not our own happiness apart from this, but as included in it." For Green, "The unity which is given to feeling in self-consciousness alters the character of desire completely. In the animal state desire is for immediate pleasant feeling. In the human state, on the other hand, desire is for objects. In the attainment of these objects it is thought that a certain self-satisfaction will be found. But the objects are not desired—or at least the chief incentive in any desire is not for any enjoyable feeling tone that attends the attainment of the object." Green thinks it impossible that pleasure could be the principal aim of a self-conscious being. Nietzsche regards the "will for power" as the only final value, and he holds that this furnishes the motive to action. Pleasure and pain accompany action, but are never the motives for it, nor the ends.

VII. The conclusion states that neither of Kant's problems has been wholly solved, though each of the philosophers discussed has contributed somewhat toward the solution of one or the other.

Dr. Wright's treatise is too full of material to be adequately reviewed in a few pages, and the above account does not do justice to his clearness and continuity. He has given a concise and careful statement of the growth of an ethical problem and of various proposed solutions. Though primarily ethical in its scope, this essay, in the attention it gives to the definition of pleasure, becomes a valuable contribution to the history of psychology as well as to the field of ethics.

WINNEBAGO, WISCONSIN.

KATE GORDON.

The Conception of Possibility. R. F. ALFRED HOERNLÉ. *International Journal of Ethics*, Vol. XVIII., No. 1, October, 1907. Pp. 25-43.

When we regard alternatives in conduct as possible, we do not mean that if our knowledge were complete we should know before decision how we were going to decide. Theoretical possibility does imply incompleteness of knowledge; but possibility in volitional experience implies the notion of tendency or realization in the thing known.

The theoretical assertion "glass is brittle" implies the possibility that glass will break. If we enumerate all the conditions required for the breaking of glass, we may say that glass of a given composition, under a certain pressure, *must* break. If *A*, then *B*, necessarily. But this necessity is only "ideal." The inexhaustible complexity of the "real" makes it uncertain whether *A* in fact exists, in any particular case. In particular cases we can only say that *B* is possible, or that it is *more* possible. This assertion of possibility is a confession of ignorance, an ignorance not to be eliminated.

The concept of the future also implies, however, possibility of another stamp. Suppose all the conditions, *A*, to be present. *B* then is not actual, but possible. Its possibility and its necessity alike result from *A*. Because *A* is present, *B* is not, but is to be present. Here, says Mr. Hoernlé, we introduce surreptitiously the dynamic concept of tendency. This "real" possibility implies not only that all the conditions,

A, are present which make *B* realizable, possible, but also that there is a tendency, a power, force or life in *A* which brings *B* on the scene. This tendency can not be included among present conditions, for if *all* the conditions of *B* were present, there is no reason why *B* should not be present now just as much as ever it will be.

Determinism conceives the process of realization as a succession of events in which the present and real condition the future. But the fact that the future is future requires that all its conditions are not present. Hence the recognition of processes of realization forbids the assumption of determinism, and leaves open the question of genuine alternatives. This was evident as soon as we made explicit the notion of tendency latent in our conception of such processes. Volition is the consciousness of tendency; so that we may conclude that it admits the concept of possibility both in the sense in which it is opposed to actuality, and in the sense in which it is opposed to determinism.

To the argument offered by determinism that volitional tendencies are conditioned by character, or by self, inasmuch as the decision in any given case could not have been other than it was without supposing the self or character to have been other than it was,—to this Mr. Hoernlé answers that the self and the character are themselves affected by the realization of the tendency, and are not wholly contained in the antecedent conditions of the decision. Action makes or determines the character and the self, as truly as it is conditioned by them. The self is dynamic, tendential.

Granting that the genuineness of alternatives is thus far problematical, only, and an open question, Mr. Hoernlé then brings into the field the testimony of consciousness, both at the moment of consciousness and in the sense of self-reproach. He maintains that there is now no reason to regard this testimony as illusory. He also notes that self-reproach suggests the position that the good was possible, even where it has not been realized, though here, at least, the presence of alternatives is due to the groundless, irrational character of evil.

Does not Mr. Hoernlé neglect in this argument the consideration that necessity and the denial of genuine alternatives lurk in the conception of tendency as possessing a *direction* which can not be changed except through an external cause? This consideration applies to motion in space, without apparent contradiction. It is what is really meant in the appeal to self-determinism. The self is conceived as having not only present existence, but direction, through which the process of realization is determined. This concept of inertia may be strictly applicable only to motion in space; but that this is so has not been shown, I believe. We speak of mental inertia, whether of stability or of change.

PERCY HUGHES.

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JOURNALS AND NEW BOOKS

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE. February, 1908, Bd. XIV., Heft 1. *Der Pragmatismus* (pp. 1-10): L. STEIN. - A brilliant summary of the situation upon which James's book appeared, introductory to a criticism to follow upon the book itself. *Naturwissenschaft und Wirklichkeitserkenntnis* (pp. 10-24): M. FRISCHEISEN-KÖHLER. - The question of atoms, ions, etc., is as much concerned with concrete existence as is the corresponding investigations into the existence of double, and dark, stars, or, indeed, of any body whatsoever. *Religion und Lebensgenuss* (pp. 24-31): D. M. MEYER. - Love is the means to, and the consummation of, happiness; religion is the true path to this end. *Grundzüge einer Sozialaristokratie* (pp. 31-57): F. SOMMER. - Social betterment depends upon the differentiation of people into the fundamental types, which here are defined; this differentiation awaits the freeing of marriage from other motives than those of personal attraction, and the restoration of the family to its place as an educational force. *Studien zur Wertaxiomatik* (pp. 58-94): T. LESSING. - In place of the psychological (Hume), the positivistic (evolutionary), and the metaphysical (Kantian) bases of ethical theory, is proposed what may be called a logical approach to its problems, in which worths are distinguished fundamentally according as they may be regarded as means or as ultimate, not as highest, ends. *Die Räumlichkeit als objectiver Empfindungsverband* (pp. 94-116): P. SCHWARTZKOPFF. - A psychological treatise on the development of the idea of space through the senses of sight and touch. *Jahresbericht über die Literatur zur Metaphysik* (pp. 117-134): D. KOIGEN. - This issue is devoted to nature philosophy, as exemplified, on the one hand, in T. Lipps, "*Philosophie im Beginne des XX Jahrhunderts*," the critical development, "more Kantian than Kant"; and, on the other, by W. Ostwald's "*Systematische Philosophie*," concrete and relativistic, of service in unifying scientific concepts, but contrary to the spirit of German philosophy in putting aside the problem of the world's totality. *Die neuesten Erscheinungen. Systematische Abhandlungen in den Zeitschriften. Eingegangene Bücher.*

Balfour, A. J. *Decadence*. Henry Sidgwick memorial lecture. Cambridge: The University Press. 1908. Pp. 62. 1s. 6d. net.

Bayet, Albert. *L'idée de bien*. Essai sur le principe de l'art moral et rational. Paris: Felix Alcan. 1908. Pp. 233. 3.75 fr.

Butler, Nicholas Murray. *Philosophy*. A lecture delivered at Columbia University in the series on science, philosophy, and art, March 4, 1908. New York: The Columbia University Press. 1908. Pp. 27. 25 cents.

George Washington University Bulletin. Department of medicine number, Vol. VI., No. 4, 1907. This number contains, among other articles, the following: Psychology and the Medical School, by Shep-

herd Ivory Franz; Reflex Neurosis with Particular Reference to Eye-strain, by D. Kerfoot Shute; The Philosophical Foundations of Charlatanry in Medicine, by D. Kerfoot Shute.

Schmidt, Eugen Heinrich. *Kritik der Philosophie vom Standpunkt der intuitiven Erkenntnis*. Leipzig: Fritz Eckardt. 1908. Pp. viii + 507. 8.50 M.

NOTES AND NEWS

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

GENTLEMEN: As a student for many years of a subject now called signification, dealing with the possibilities as well as defects in the accepted forms and significance of expression, may I ask leave to say a few words on Mr. Rutgers Marshall's letter in your issue of February 13th?

It is always refreshing to see such an appeal made from a distinguished quarter for consensus on sorely needed rectifications of sporadic and inconsistent usage, especially in psychology, the subject which more nearly than any other concerns us all. Having noted a vast number of cases in which words like "consciousness" and "awareness" are used apparently at the fancy and discretion of each writer, I would venture to suggest that awareness should retain some flavor of its original sense of an extension of that *wariness*—once needfully prominent—which is the primitive and still operative preparation for defensive or protective action.

We have to remember, also, that while "unconscious" from shock or anesthetic, our psychic existence persists through complete *insensibility*. This word again introduces another and important element. As its converse is sensibility or sensitiveness, it is here, perhaps, that care is especially needed, since it should keep closely drawn the link between consciousness, awareness, and sensation, which last belongs to one of the richest and most variously suggestive of our ideas—that of sense.

There is, of course, much more to say which, as far as I know, has not yet been said, on a theme like this; but I must not encroach further on your space.

Yours faithfully,

V. WELBY.

DUNEAVES, HARROW, ENGLAND,
February 24, 1908.

THE following summary of the address of the outgoing president of the Anthropological Institute, Professor Cunningham, on "Anthropology in the Eighteenth Century," is from the *Athenæum* of February 8. Anthropology in the period discussed was identified primarily with the names of five men, Camper, White, Blumenbach, Prichard, and Lawrence. "Camper, although his strictly anthropological work consisted of only four papers, yet had an immense influence on the science. It is especially noteworthy that Camper's inclinations at first turned towards

art, and that it was due to this fact that he invented the facial angle, which, in spite of severe criticism, had until a comparatively recent period a great influence on craniometrical methods. White, a Manchester physician, had been spoken of as the father of anthropometry, and in a sense this title is not altogether undeserved, as he appears to have been the first to make in a rational and scientific manner measurements of the living person. But his chief title to fame lies in his discovery that the forearm of the negro, relatively to the upper arm, is longer than that of the European, and a corresponding relationship exists between the ape and the negro. From these observations of White's most interesting facts have accrued. To Blumenbach is due in great part the foundation of modern anthropology. His knowledge was remarkable, and his work on 'The Natural Variety of Mankind' of the first importance. He divided mankind into five varieties under one species, and his classification rested on a rational basis, as he placed reliance on color, hair, and bodily structure, especially the form of the skull. Although not the first to study this part of the skeleton, he was the first to do so scientifically, and he must always be regarded, therefore, as the founder of craniology, and his influence on this subject can be felt at the present day. By many people Prichard has been considered as the greatest anthropologist of his age. An accomplished anatomist, he was also a learned philologist and a noted psychologist, and he brought his wide knowledge of these subjects to bear upon his ethnological work. In his famous book 'Researches into the Physical History of Mankind' he maintained, like Camper and Blumenbach, that the races of man should be included under one species. He also held interesting views on the subject of skin color, being of opinion that the original pair from whom mankind has sprung were black. The last of the great anthropologists with whom Professor Cunningham dealt was Sir William Lawrence. At the age of thirty-two he delivered his famous lectures on comparative anatomy, which raised a storm of protest, and were so strongly denounced as 'propagating opinions detrimental to society' that he withdrew them, and with their withdrawal his anthropological work ceased. But his lectures are still read, as they possess great scientific value. His facts were doubtless largely borrowed from Blumenbach, but he handled them in a more illuminating way and showed a deeper insight into their morphological significance. He denied, as did Prichard, the doctrine of the transmissibility of acquired characters, and to a certain extent anticipated the modern doctrine of evolution. His loss to anthropology was great, as had he continued his work he would have contributed much to the progress of the science."

Nature of February 1 mentions as follows the new French ethnographical review, *Revue des Études ethnographiques et sociologiques*, which, "under the editorship of M. A. van Gennep, starts its career in the number for last month with an excellent program. Dr. J. G. Frazer contributes a chapter from the new forthcoming edition of the 'Golden Bough' on 'St. George and the Palilia.' The Palilia is a Roman spring

agricultural feast, at which the herdsman used to make a sacrifice to Pales and invoke his protection for the flocks, praying him to grant rain for the pastures and to protect the cattle from wolves. In Esthonia, about the same time of the year, a feast is held in honor of St. George, who grants fertility to women and flocks. In eastern Europe the saint seems to represent the old spring god of the Lithuanians, Pergrubius, and, further east, Tammuz or Adonis. With his wide knowledge of peasant rites and ceremonies, Dr. Frazer has no difficulty in establishing the connection between these varied cults of agricultural and pastoral life. This paper is followed by an elaborate sketch by M. M. Delafosse of the Siena or Senoufo tribe, who inhabit the French territory in West Africa in the region adjoining the British Ashanti frontier. M. C. Boreux discusses the decorated pottery of predynastic Egypt. Some reviews and a bibliography complete a publication which promises to be of considerable value to ethnologists."

SEELEY & Co. will publish this spring a translation by Professor A. H. Keane of the "*Völkerkunde*" of Dr. Leo Frobenius, an interesting book on the life, customs, and thoughts of primitive man. The English rendering will be entitled "*The Childhood of Man*," and will contain over 400 pictures drawn from authentic sources.

MR. C. V. HARTMAN, curator of the ethnological section at the Carnegie Museum in Pittsburg, has received the call to a similar position at the ethnological department of the Riks-museum in Stockholm.

WARDE FOWLER, distinguished for his writings on Roman religion, has been appointed Gifford lecturer at the University of Edinburgh for the years 1909-11.

DR. L. LÉVY-BRÜHL has been appointed to succeed Émile Boutroux, professor of the history of modern philosophy at the University of Paris.

PROFESSOR ZIEGLER, in Strausburg, has been compelled by ill health to discontinue temporarily his lectures.

THE anthropological collections made by Mr. Henry G. Bryant among the Esquimaux have been presented by him to the University of Pennsylvania.

A NEW Psycho-neurological Institute, under the direction of Professor Bechterev, was recently opened at St. Petersburg.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

CONSCIOUSNESS AND REALITY

II. CONSCIOUSNESS AND ITS IMPLICATIONS

IF consciousness makes no causal difference to our energetic processes, if the complexity and associative organization, as well as the nature of the individual processes, such as sensations and feelings, depend upon the physiological development and structure, what difference can consciousness make? In the first place, we have seen that this is really a new problem. What has been dealt with in the past, from Protagoras, Augustine, and Descartes down, has been rather the difference between one set of processes, the conative processes, especially as involved in knowledge, and the processes which seem more external to the conscious ego. But if you take away from the side of consciousness all that is energetic, is it not an abstraction? Yes, it is an abstraction in the sense that space is an abstraction, but like space it must be treated as a fact of its own kind. We have become acquainted with other realities, which, while they are not energy and therefore can make no causal difference to energetic centers, yet do make a definable difference. We must rid ourselves of the prejudice that energetic or causal difference is the only difference which facts within reality can make to each other. There are differences which do not involve quantitative equivalence, but which are equally real. Space has no causal relation to the energies in space, and yet it makes a decided difference to these energies that they must interact in space. Their actions do vary in a certain statable way with the distance. Time I have identified elsewhere with the chance element of the universe. It makes the difference of fluency or change at all. To what degree and of what kind the fluency shall be, depends upon the structural character of reality. Hence in trying to describe the constancies or anticipations, based upon structure, even in reducing the flow of process in general to a conventional statement in terms of some one process, we may come to overlook the presupposition which makes process at all possible. The space character and the time character

each makes only one difference and throws upon the energetic structure the responsibility for the diversity of facts and changes.

So with consciousness: it makes only one difference to reality. Under certain energetic conditions, it makes the difference of *awareness*. You might say that it is physiological processes which make consciousness apparent, rather than the opposite. For nature must first perfect her arrangements before consciousness can make any apparent difference. And this apparent difference is the difference of awareness. What the awareness means, what character and value it has, depend upon the physiological processes. The energetic processes color consciousness, not consciousness the processes. Consciousness itself is colorless. A certain kind of energetic differentiation and a certain degree of energetic intensity become sensations of color or tone, etc., when aware of themselves; certain constructive or destructive changes become pleasure or pain. A certain kind of associative or cumulative structure becomes imaginative perspective, etc. The usefulness of such consciousness does not account for its existence, any more than the usefulness of space could account for its existence; but we can see how consciousness, being real, can figure as a survival condition and how a structure, making it meaningful, should be advantageous. The structures favor consciousness and in turn consciousness favors the structures.

Adaptation is not a matter of consciousness, as complicated adaptation does go on, both in human and infra-human life, without consciousness. But, with consciousness, physiological adaptation becomes purpose. Consciousness makes the difference between mere habit and instinct on the one hand, and memory and apperception on the other. It "is the light which lighteth every man that cometh into the world," but whether it is color or tone, emotion or thinking, pleasure or pain, depends not upon it, but upon the physiological conditions. As space is the precondition of distance and time of change, so consciousness is the precondition of awareness.

This awareness gives meaning and value to process under certain conditions. It is the difference between waking and sleeping structure. Perhaps an illustration or two will help. Without consciousness we could have the ether waves and the retinal changes and the complex cortical changes with complex adjustments, as in somnambulism, but there would be lacking the awareness which makes the situation *mean* light. So with sound and the other senses. So with the complex structural rearrangements which we call ideal construction, from reverie to productive imagination and reasoning. Without consciousness, again, certain destructive organic changes might be going on, but they could, perhaps, only be corrected by the extinction of the particular individual and the building up of race instincts,

which is a costly and clumsy method at best. With consciousness an infinitely greater degree of individual adjustment becomes possible because of the awareness of the changes. The cumulative changes, made possible by a nervous system, become cumulative meaning. Awareness converts cumulative habit into perspective, physiological structures become pictures, and energetic interactions become significant relations. Thus past sensations and thinking, now physiological facts, become available for present emergencies, making it possible for prospective conative tendency to anticipate the future in a definite way, and thus enabling us to act at a distance in space and in time, instead of being dependent upon the present stimulus. Consciousness makes the difference to the stream of instinctive tendencies, that it can see its own flow, becomes aware of its own direction; and, as it does so, can control its separate impulses accordingly. It is not a link in the chain of causality, interacting with the events, physical or mental, but by its presence the construction of physical and mental becomes possible. The whole flow of change is transformed from mechanical causality to teleological causality. It is more like a medium, if you could think of a non-material and non-energetic medium, in which the events travel, than like a cause. It is not an epiphenomenon in the sense that it is a by-product of physical changes. Rather, it is a fact over and beyond the physical changes, which, under certain conditions, makes them more than physical. It makes the trend of instinctive tendency an ego.

Consciousness is like Aristotle's form of the body, in so far as it is inert as to the carrying on of bodily activity. It does not figure as a cause in the process. It does not make the engine go. Nor is it the potential energy actualized, as Aristotle supposed, since it is not statable as energy at all. It is a new fact added. It makes a difference, however, both as to the value and the control of processes. It makes possible prevision instead of mere cumulative habit, as well as illumines immediate value. Meaningful activity, in other words, requires two attributes or independent variables to describe it—energy and consciousness. It is a mistake to suppose that our ideals are mere corruscations or halos, by-plays to the going on of energy. They are energies, tendencies, aware of their direction and with a complex structural machinery in the way of association and habit at their disposal. That the organism is relighted, even as a candle in the night, can be easily understood, if we attend to the physical conditions on the one hand, and consciousness on the other.

The pathological phenomena fall as easily under the account of structure and awareness as the normal. Such phenomena as lapses of memory, alternating selves, multiple selves, etc., can easily be

met on this theory as due to physiological disorganization, not to disorganization of consciousness.

While consciousness as awareness is the precondition of all value and meaning, it can not decide as between values and meanings; it can not, as consciousness, legislate as between higher and lower values or pick the permanent from the transient. They are alike conscious; and, therefore, their different claims must be decided on the ground of organization, not on the ground of awareness. It makes the realization of tendency valuable, both immediately and in perspective, past and future; but it has nothing to say as to what tendencies shall prevail; which are valid or invalid values. Since objects are pleasing and beautiful in relation to our tendencies, and since our whole universe of tendencies may be low or abnormal, and yet be consistent within itself, consistent art or poetry or life, but low, we need another dimension besides energetic tendency and consciousness to decide what values or ideals shall prevail, which is the seeming and which is the real direction, if the universe is to have ultimate significance. It may be the wrong meaning, the wrong scale of values, the wrong pleasures and pains, a low universe of appreciation. If so, they must be eliminated and new universes of value be made to prevail. We must, therefore, assume besides energy and consciousness a formal attribute. The universe must be so constituted as to have such an objective form as to condition survival of individual streams of tendency, as well as social conventions, in order that new and higher universes may prevail in the long run. This attribute I have called elsewhere the attribute of ought or direction. This attribute must be as real as the energy aspect, the survival of the transformations of which it determines. Form and matter, to use Aristotelian terms, are ultimate aspects of the universe. But the form is not energy nor does it grow out of energy, but guarantees worth and validity to the process. To use a figure of speech, which is always dangerous, the formal aspect is the non-stuff warp of history, but the woof, the content, is furnished by the dynamic process. This warp is selective merely and can not produce its own material; and, in the infinity of energetic transformations, there is ample room for originality. Consciousness, then, as awareness, does not explain any particular value or meaning, nor does it determine the validity of values and meanings. It is a general precondition without which there could not be value at all.

We must say a word about the distribution of consciousness, its place in the cosmos as a whole. The distribution of consciousness so far as psychology is concerned, is a comparatively simple matter. It is a question of evidence; and we can get observational evidence of consciousness only when we find associative memory.

already presupposes complex organic conditions. Whether memory can be present below the grade where we find a nervous system is a matter of evidence too and should not be settled *a priori*.

Even within the range of experience, however, we find many degrees. These degrees depend upon the organization of the meaning, which in turn depends upon the organization of the energetic processes, consciousness being present and undivided in all the stages equally. The question arises: Can there be awareness below the level of associative memory and meaning? We can at least find, in the course of experience, transition links toward such a state. We are sometimes aware of having been dimly conscious, as in going to sleep or waking, without being able to recall any ideas. This dimmer awareness here is continuous with ideational awareness and so comes to mean something as a background. The epileptic and the somnambulist respond to stimuli as though they had sensory consciousness, yet they furnish no evidence in the way of memory. The first conscious states of the infant must be such a dim awareness without meaning or "knowledge about." The dog, and still more the pigeon and the frog, after their hemispheres have been removed, though the evidence shows that there is no reference to past experience and therefore no meaning, still seem to react on various sense stimuli as though they had sensations—awareness without knowledge about. Where such awareness stops it would be impossible to say, and, for purposes of continuity, we may find it convenient to assume it clear down. Such awareness in the nature of things must be problematic, a mere *X* as far as knowledge is concerned, virtually split off from practical purposes. It is consistent with the fact, which we have tried to bring out above, that the *meaning* of the awareness, what sort of meaning and whether it means anything at all, is due to physiological structure.

This is very different from supposing that there are *feelings* outside of consciousness. That is mere nonsense. The question is whether consciousness as an ontological presupposition exists below even the dimmest or most confused processes of experience as we know it. There is no easy line psychologically; and logically it is simpler to assume the presupposition of consciousness than to derive it from non-conscious processes. It is easier, for epistemological purposes, to suppose that consciousness is a constant, rather than that it butts in; that it shines upon the just and the unjust, the simple and the complex, and in all kinds of weather, and that the difference in its effectiveness is due, not to it, but to the energetic conditions in the universe. For meaning structures differ from non-meaning structures not only in consciousness, but in organization. And so meaning structures differ from other meaning structures.

It may be universal, as time and space are universal, though we can only know it or have evidence of it where it makes a difference. We do not know it as split off, any more than we know anything else which is isolated. The question what consciousness is, if there is nothing but consciousness, is as sensible as the question what difference space makes if there is nothing but space. Attributes of reality are "not divided by a hatchet." It is not necessary to regard them as more split off in nature than we find them. Consciousness does seem to be split off in our own personal history, so far as making any difference is concerned, under certain organic conditions, as in dreamless sleep. It may be the same in connection with the simpler processes of nature. At any rate, to suppose consciousness existent, even when the conditions for its effectiveness are wanting, waiting, as it were, for the conditions to appear, or being made effective through the conditions, steers clear of the question of origin, and so greatly simplifies our metaphysical problem. Its effectiveness, we have seen, consists merely in contributing awareness. I can see only two ways of accounting for the presence of consciousness. It must either be a constant—as I have tried to show above—or it must be created outright, when we have evidence of it. Materialism amounts to the latter view. Moreover, this miracle would have to occur not only once and for all, but would have to be repeated every time and everywhere that consciousness is known to appear. Such a heaping up of miracles is hardly consistent with the modern scientific spirit.

The chief difficulty, as regards the presence of consciousness, comes from regarding consciousness as private or individual. If we regard consciousness as one and undivided, one character, the same everywhere, as space is the same, we shall avoid the main stumbling-block. We do not suppose that there must be as many real spaces as there are bodies, but real space has only one character, binding upon all alike so far as they are individual energies. It makes the difference of distance. So with consciousness. It does not differ from moment to moment or from one conscious being to another. If there is one conscious being in the universe, therefore, consciousness is as real as though there were billions, since consciousness is not a matter of quantity. And, if we find it difficult to think of consciousness as split off, we must remember it only seems split off from the individual point of view. In the whole it is really present. In the total universe, moreover, even if we find it difficult to imagine awareness without meaning, we can imagine some individual as possessing the structure for meaning awareness at any one time, even on the theory of chances. And, if this does not satisfy us in the changes of cosmic weather, we can have recourse to the guardian of Israel who "shall neither slumber nor sleep." The constancy of

energetic conditions for such a being we can now conceive as possible. As the simplest organic being, the unicellular organism, has an indefinite life, so we may imagine the highest or perfectly organized being as having the conditions for permanent life and consciousness in himself. It is we half-men that struggle. Such a being we shall have reason, no doubt, to assume, on ethical and religious grounds. If so, it will greatly aid our imagination, even if it does not increase the coerciveness of our logic. The need for a permanent consciousness might even count as one of the arguments for such a being, if unconvinced of the possibility of such permanency in any other way. Better such an assumption than the heaping up of meaningless miracles.

And why should we assume that consciousness is subjective? Other people's consciousness is not subjective to me, surely. I must acknowledge it as objective fact. Nor is there any ground for speaking of mine as subjective. Whether facts are subjective or not must be determined on other grounds than their being conscious. My being conscious of facts does not *prove* them subjective. My fellow man, music, color, etc., do not become subjective because I am conscious of them. In that case all facts would become subjective. The test of subjectivity or objectivity is whether they can be shared by several observers. Those are subjective processes which can be facts for one observer only. Those are objective which can be shared by several observers. Thus pain is subjective, in so far as I can not put another observer in a position to have the same process; while color processes must be objective, because another observer can share them as much as he can share any object. I may for certain purposes, mechanical purposes for example, ignore the color properties and select the geometrical properties, but that is another story, and has nothing to do with objective reality. The survival value of treating such properties as color and sound perceptions as objective would of itself be a strong argument for their objective significance.

The matter of subjectivity after all is largely a matter of degree. The closer we come to similarity of conditions, both of situation and individual structure, the nearer we come to a sharing not only of logical meanings, but of feelings and emotions. We come to have common sympathies. It is customary to speak of images as private, as contrasted with perceptions, and yet, as Le Bon and others have pointed out, images, especially visual images, furnish the most effective social means of persuasion and common action. They furnish the bond of the mob. If imagery were as private as the psychologists try to tell us, poetry would be well-nigh impossible.

Psychology as an introspective science, moreover, has no mon-

opoly of consciousness as such, any more than the physical sciences. What it studies is the laws and tendencies of conative processes, processes in part, or part of the time, conscious, i. e., issuing into consciousness under certain conditions or presupposed by the conscious moment, as, for example, mental constitution.

This theory furnishes a decided advantage from the point of view of accounting for perception and knowledge. It destroys the privacy of consciousness, which has always been the bulwark of the skeptic; and it reinstates the world of energetic continuities, which has proved so fruitful a conception in science. This theory recognizes privacy, but it is a relative and explicable privacy, the privacy of tendency, of individual variation, conditioning race and imitative relations. If this is a drawback to communication, it is the raw material of progress. Moreover, it bears close relations to the race life all the while. It is a deviation merely from the common race stock, the continuity with which must make its originality significant. It is not a charmed circle. This conception of consciousness does not indeed solve the problem of knowledge. But, inasmuch as for this theory consciousness becomes merely a universal postulate, so far as the knowing function is concerned, therefore consciousness no longer complicates the problem, which now becomes an energetic problem. This problem is a twofold one. It must explain on the one hand how one energy can know another, whether differing in complexity or in kind, and on the other hand how our energetic purposes can know realities which are not energy, including consciousness itself. This problem has been dealt with elsewhere.¹

This conception of consciousness greatly simplifies the problem of energy. It destroys the old conceptual cleavage between mind and body, or physical energy on the one hand and psychological processes on the other, by making consciousness a fact independent of energy. Nature knows no cleavage of energetic interactions. Why should we, by our concepts, put asunder what nature has joined together? The scientific theorist may now go ahead and simplify as he pleases, irrespective of consciousness. All we ask is that his conceptual model shall meet the energetic facts.

Is consciousness diaphanous? If this means that consciousness makes no difference, that processes are the same when they are conscious as when they are not conscious, that we are the same asleep as awake, then the question is absurd. But if the statement that consciousness is diaphanous merely means to emphasize that consciousness does not make or alter the energies of things; that there are no properties belonging to consciousness or constituted by con-

¹ See especially the author's article "The New Realism," in this JOURNAL, Vol. IV., p. 533; also "The Ultimate Attributes of Reality," *idem.*, p. 281.

sciousness; that the only difference it makes is awareness, which is not a causal relation, but is made possible by the organization of the energies of the body, making apparent the dimension of consciousness—if this is what is meant, it agrees with this theory. On the other hand, while consciousness does not make properties or values, it is a general precondition of their existence and there is no sense in speaking of such properties or values without consciousness.

If the conditions are such that consciousness can make no difference, does the universe vanish? Why should it? I do not vanish as a set of energies when I am asleep, not even when no one takes account of me. I have no *evidence* of consciousness—and evidence would mean memory and so awareness of the meaning type—during seven hours of last night, and no one perceived me, and yet I can go on with my plans of yesterday. So nature could have rhythmic pulses. Yet in its waking moments it would know it was real in its sleep and could furnish evidence in the way of changes which must be interpolated between the waking moments, and which do not happen when they are taken account of, but must be taken account of because they have happened. Of course, if the whole world were asleep, the sleep of Endymion would have no *meaning*, though real nevertheless if conditioning his waking up.

Every theory of reality must meet certain practical problems. And the question probably has suggested itself before now: What becomes of immortality on this theory? To this I will answer that the problem of immortality is the same on this as on any other theory. It can be neither proved nor disproved by theories. To say that everything is experience, irrespective of evidence, does not help the problem of immortality one whit. The facts of transmutation and the demand for individual continuity would still remain. As individual immortality means, not the simplicity of the soul nor the immortality of mere consciousness, but the carrying over, perhaps, of memories, or at least of tendencies, the problem becomes an energetic one. Individual immortality would depend upon the continuity of energetic conditions, not upon consciousness. It would be difficult to show that we constantly possess awareness during the sleeping and waking of this life even. Moreover, energetic continuity need not mean the gross continuity of the body. Race continuity involves only one form of energy, and a very small portion at that. So it may be with individual continuity including tendency, perhaps memory. If we can carry tendency over, tendency to think and feel and act, to enjoy the beauty and feel the sympathy with our world, we ought to be satisfied. This is the net result of it all. This view, moreover, would fit in with the church doctrine of the resurrection of the body, so far as energetic continuity is con-

cerned. It would not include the clothes or shoes or Gabriel's trumpet. But these, after all, are not an essential part of the conception. The life of a disembodied consciousness would be a pretty ghost-like affair. The world of energy must furnish the principle of individuation.

Since all that is necessary to bring back tendencies and memories is the presence of certain energetic conditions, with the light of consciousness thrown on them, the problem of immortality becomes at least simplified. And that there may be a constancy of conditions, even though having a finite beginning, may be shown by the relations within the electromagnetic field and the Brownian movement. These give us at least an inkling of energetic immortality. The fact that we have not been able to trace such energetic continuity of personality yet, is no argument. We were slow in tracing biological continuity experimentally. We have only within comparatively recent times found out something of the character of electricity and radium, and we have just been startled by the Brownian movement. The energy underlying personal continuity may be much subtler than these, and the favorable occasion for taking account of it, in its new state, may be much more difficult to find. Perhaps the spontaneous trance, as in the case of Mrs. Piper, may furnish such an opportunity. This remains to be established. At any rate, we have no right to assume that a certain gross energetic condition to which we are accustomed, is the only condition under which consciousness can appear. We have discovered a multiplicity of conditions under which electricity can appear. To be sure, these are only analogies, but I have shown at least that this view is not hostile to the conception of permanent personality. What really is the place of man and God in the universe must be established by the evidence of human experience and not by *a priori* reasoning. And they must have a place in the universe if human experience in its progressive evolution continues to require them. The realities of the ego, of God and immortality, remain what they are, on any theory. If the evidence proves that they must be, then they can be.

Conclusion.—This view of consciousness is self-consistent; it is economic in that it assumes consciousness as a constant and thus avoids the problem of origin; it is also economic in avoiding the duplication of structure involved in separating physiological and conscious processes. It meets all the requirements of biological evolution, and of normal and abnormal psychology. It accounts for the intermittent character of awareness. It meets the practical demands as well as any other theory. It does not prove them, for this must be done by evidence, but it makes them possible.

JOHN E. BOODIN.

CONSCIOUSNESS AND CONSERVATION

IN the course of an examination of various idealistic systems certain difficulties have suggested themselves. One of these, which may be of interest, involves the problem of conservation. The idea of conservation has become so familiar from our commerce with the so-called external world that the full significance of the fact that we do not demand it in our dealings with consciousness seldom strikes home. Is psychology here completely at fault, or has this principle no sway in the psychical realm? Glancing at the development of psychology since its alliance with physiology, one is inclined to say that a deeper reason than the one usually assigned motivated their union. Ideas, so far as we can discover by introspection, have no permanence, do not continue to exist when they pass out of consciousness. "We may still speak of ideas being stored in the mind and being associated together just as we may still say of a man that he carries the image of his beloved in his heart, but the two expressions have the same sort of validity only. They are picturesque survivals from the age of ignorance."¹ Both structural and functional psychology, as a consequence, rely on the brain for continuity. But if this is so, is not reality continually changing? It may still be that the old maxim holds that "nothing comes from nothing," but it can no longer be true that "nothing is destroyed." Each experience of mine is unique and is as evanescent as a passing shadow.

The reasons for the affirmations of things which exist whether we experience them or no, and of the parallel doctrines of the conservation of matter and of energy, need not concern us. Suffice it to point out that idealism recognizes ultimately only the reality of *conscious experience*. If so, must not idealism deny the conservation of reality?

For personal idealism the conclusion is especially interesting, since appeal can not be made to the mysteries of an unknowable absolute whose timelessness precludes all question of change. If reality is composed of finite experiencers and there is no death, reality must increase continually, or at least *may* increase. For either all began at once, and this is nothing other than the assertion that the universe arose spontaneously and the denial of *ex nihilo nihil fit*, or they did not arise together, and this implies that reality is increasing. That all individuals came into existence together, all laws of heredity, Mendelian and Galtonian, deny, unless a most peculiar and static architectonic is permitted, contrary to all evolutionary postulates. If, however, immortality be negated as the present

¹ MacDougal, "Physiological Psychology," p. 119.

tendency inclines, might not all die and reality cease in the twinkling of an eye? No more than Hume could be certain of the rising of the sun to-morrow, could idealism be assured of the continued existence of the universe. But if it be rejoined that, though experiencers may die, experience is always with us, is this not an appeal to a mind-stuff which rearranges itself, and have we any empirical grounds for such a position? As I have indicated, does not psychology deny a resurrection of past experiences as such, frowning upon the myth of a *hades* where they await disconsolately a return to the sunlit upper world?

Before drawing my moral, I wish to justify the thesis that the mind-body relation is metaphysical, and not merely methodological, by an analysis of an idealist's position. "Now that we have found that at least a part of that order, namely, the bodies of our fellow men, are not mere complexes in our own experience, but have a further existence as themselves experiencing subjects and are so far '*independent*' of their actual presentation in our own experience, we can no longer conclude from the dependence of the physical order for its sensible properties upon presentation to ourselves that it has no further existence of its own."² If the physical world is, as Mr. Taylor asserts, *more than* its being perceived, the *body upon the individual's demise* must also be more than its perception in other consciousnesses. Hence a duality is forced to the front; for if immortality is granted, the body is other than the immortal part, since it disintegrates; and the problem is raised for us, How were the individual and the reality represented to us by the body related during life? And if immortality is not granted, a like problem asserts itself, since the body remains in this case also and was, therefore, *more than* the individual's conscious experiences. In short, immortality is dualistic and renders meaningless the complex neuroses which now accompany consciousness.

This relative independence of the organism has direct connection with the problem of conservation, and this was my reason for introducing it. In contrast to the lack of conservation of consciousness is the conservation, not of the organization of the body necessarily, but of its so-called "additive" properties. Elsewhere I have called attention to the importance of organization as supplying the place in modern science of the qualitative. It is like the qualitative and like consciousness in that it is not ultimately conserved, *e. g.*, in organisms at death. To those unacquainted with physical chemistry the term "additive," used above, may require explanation. "In the first class we have those properties which are pos-

² Taylor, "*Elements of Metaphysics*," p. 207.

sessed by the atoms unchanged, no matter in what physical or chemical state these atoms may exist. Such properties are called additive, and the best instance of an additive property is found in weight (or mass). Each atom retains its weight unaltered whether it exists in the free state or whether it is combined with other atoms. When atoms combine the weight of the compound is the sum of the weights of the component atoms."³ In modern energetics this principle holds without the accompaniment of atomism.

My query is this, May not the quantitative be related to the qualitative and to consciousness and organization as the invariant is to the variant in mathematics, so that we may have conservation of the quantitative and non-conservation of the qualitative? Naturally this involves a reinterpretation of conservation as applied to reality. But is not this reinterpretation shadowed forth in the most general definition of reality, "to be is to be active"? If this were so, the quantitative identity of cause and effect could still remain an ideal not conflicting with the doctrine of *grades of causal relation* depending upon organization, which biology is demanding. Physics has been more mechanical than chemistry because dealing with more general and external relations; it has also been more *a priori* and less empirical. Recent investigations, however, are destroying the barriers and the evolution of the elements and, therewith, the fact of organization is being acknowledged. That there must be grades of causal relation depending on the degree of organization of the interacting terms has not yet been fully recognized although biology, physiology, and chemistry have a suspicion of it. The reaction of an organism as a whole to a stimulus as indicated by Jennings brings out my meaning. In biology, for example, fertility and infertility are seen to be due to surface tension, which varies with the species. Mendelian characters, also, present the effect of evolutionary organization, and natural selection itself can be interpreted as a process of development of grades of causal relation. In fact, this is what adaptation means. The doctrine of specific nerve energies and the differentiation of sense-organs and cerebral centers are also best understood by the application of this conception. Scientists and philosophers alike built up their theory of nature on the least complex things, and, lost in the antithesis of mechanism and teleology, did not realize that grades of causal relation due to organization mediate these extremes. "Investigations in physical chemistry are well suited," says Pauli,⁴ "to show how all biological methods are of the same value in that they leave no

³ Walker, "Introduction to Physical Chemistry."

⁴ "Physical Chemistry in the Service of Medicine."

room for strictly mechanistic or vitalistic tendencies." And the death of mechanism makes possible a solution of the mind-brain problem.

Since my purpose is to suggest rather than to defend, I conclude this discussion of conservation with a protest against the reification of the primary qualities. Their use in descriptions of causation is merely symbolic, and not explanatory. Accordingly, ontological or real causation has never yet been understood, and there is, therefore, no good reason to look upon consciousness as ineffective and alien. As for energy, Hume's classic analysis must never be forgotten. It seems to me that only the realism which passes through idealism can hold its ground. We are then left, not with a dualism, but with a monism whose tentative utterance in regard to the mind-brain relation is of the nature of a functional identity in which organization and differentiation are the structural phases, while consciousness is the *distinct variant*. The understanding of this requires the adoption of the psychological attitude towards another's body, the making it a thing-in-itself.⁵ There may, thus, be degrees of variance corresponding to the plasticity of the individual.

Some of the logical inferences from this conclusion may be indicated. First, whereas idealism has emphasized the temporal relation between cause and effect and, in the interest of conservation, stressed quantitative identity, realism must place emphasis on spatial relationships and the organization of the interacting terms. The idealist lays weight upon temporal continuity of process because time, not space, is his important category; the realist recognizes that the world-process is stereometrical with complex differences in its nodes, the most instructive example being the relation between two men. Second, this position mediates between materialism—or shall we say energism?—and panpsychism. It can not admit panpsychism because, as brought out above, consciousness is a variant and seems to have meaning only in an organism's stress relations to its environment. On the other hand, energism must be interpreted in the light of evolution and due justice done to the qualitative and the presence of consciousness. Third, as regards personal experiencing, this position is pluralistic; I can not *be* you, though my experience is a "microcosm" with a focus symbolizing *you*: as regards reality, it is monistic and obtains this monism through the body. Fourth, as to the existence of any higher consciousness, this position is inclined to be positivistic and naturalistic. There are no reasons to give leverage to such a belief.

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⁵ Cf. *Psychological Review*, September, 1907.

THE QUESTION IN THE LEARNING PROCESS

FROM the standpoint of universal life, learning is the process of adjustment of the individual to his environment. Says Ernst Mach¹: "The end of the every-day ideational life is the thinking completion and perfection of a partially observed phenomenon." Scientific thinking, on the other hand, he says, must adjust thoughts to each other, and is satisfied only when it has allayed all intellectual discomfort. Psychologically, adjustment presupposes two experiences with a hiatus between them. The one is the older mass of experiences, the individual, and the other is the new, the environment. This hiatus or gap produces a state of tension, stronger or weaker according to the degree of mental complexity, which causes the old experiences to assume the form of expectation, or questioning toward the new. It is the indication that the gap has been recognized, and the ability to recognize and close the gap and complete the experience is the truest test of the fitness to survive. This tendency to complete an experience we call curiosity in animals and children, the thirst for knowledge in thinking men and women.

Our proposition, then, for the learning process of the human mind is: Learning is the completing of experiences, and this completion is more easily and thoroughly accomplished when there is an awareness of the hiatus leading consciousness to take on the interrogative mode of predication.

From our previous description of adjustment we have the two factors, individual and environment, the known and the unknown,—concepts very old indeed, but it is concerning the boundary, the intervening space between the two, that we wish to speak. Every idea tends to mental or physical action, and it is when the idea finds itself checked that consciousness designates it as new and that the gap appears between it and the old consciousness which marks the incompleteness of the experience. Physiologically, there is probably a blocking of the path between the sensory and ideational centers or between these and motor centers. Improper reaction to stimuli is the essence of ignorance and error, and it means the failure or destruction of the individual. The lower forms of life have but a limited number of reactions for all stimuli, hence they perish by the million. Man with an appropriate reaction for every sort of stimuli comes off victorious in an encounter with a thousand dangers. "Experience is the best teacher," says the old saw, which means that the human mind has the power of recalling former similar experiences in the face of a new experience, and can forecast the

¹ "Kenntnis und Irrthum," p. 2.

future from the past. It is this holding back of the reaction to the new stimuli until the old experience passes judgment on the appropriate reaction that constitutes the incompleteness of an experience. This sense of incompleteness may be a mere vague feeling or it may take the form of worded inquiry, *i. e.*, the question. The rash, impulsive, foolish man is one who will not forecast the future in the light of past experiences, while the ignorant man is one who has not the past experiences which will enable him to judge of the outcome of the present situation. And so our different institutions of learning are trying to give its learners such accumulated bits of experience as will enable them to complete their new experiences in the best way.

Attention has long been held to be the proper state of mind for learning. In a broad sense it means concentration, and the problem of the schoolmaster has been how to secure this. If we are agreed that the proper completion of new, partly experienced facts, or the securing of the proper reaction to each stimulus, has been the essential factor in survival, it would seem that the inherited tendency to complete experience successfully would be very strong indeed and that the task of the teacher would be to restrain rather than to urge on. But it may be true, as Havelock Ellis says, that after four years we become biologically senescent, and so begin to be satisfied too easily with using the old acquired reactions and must be forced occasionally, even at that age, to learn new methods of reaction. Certain it is that there seems to be a wonderful spontaneity about the very young child in his efforts to learn which we miss later, for he is incessantly tasting everything, asking questions, handling objects, and trying every new stimulus.

It may be true, however, that the young child has not had his questions answered nor been allowed by "original research" to satisfy himself, and that in the schoolroom he is not allowed to choose appropriate reaction for his new experiences; he may have learned that there is no hope of adequately completing his experience under adult supervision at home or in the schoolroom, and so he ceases to care or try beyond what he must. Hence when a new fact is thrust upon him he accepts it as complete so far as he is concerned, and naturally lets go of it as soon as circumstances will allow. On the other hand, if the boy hopes to be able to complete his experience in a manner which suits him, he hangs on. He is willing to bend all his energies toward accomplishing it, and he is attentive or interested. A bright boy or girl who is condemned to a dull routine of practically the same thoughts and actions is naturally not very inquiring, and hence learns little. But even the duller child becomes interested if he once recognizes the incom-

pleteness of his present experience and sees the possibility of a satisfactory completion, and for the child this must be motor to be most satisfying. It is nature's way; and the hardest lesson to be learned is this of directing the nervous energy through other channels.

My general theory of bringing up children is this: Find out what they want to do, and help them do it. And it works; in fact, I have discovered by experience that it works embarrassingly well unless one has suitable environments and a great deal of time and energy; but if this theory were carried out consistently and wisely it would do more to revolutionize our present mode of nervous urban life, to say nothing of the benefit to the individual child, than any amount of preaching. A similar statement embodies my general theory of teaching: Find out what the child wants to know, and help him learn it. Listen carefully to the questions of children and conscientiously answer them, is the practical conclusion in regard to teaching after years of painstaking study of psychology, logic, pedagogy, and other kindred subjects. And it is no small task to answer children's questions. Nowhere else do we hand out stones and scorpions so often when bread and meat are begged for.

Of course the question has played a tremendously important part in teaching so far back as the memory of man reaches and the teacher has been the questioner. But why should he be? He is not the one who wants to learn, and too often the questions are nothing more than mere tests, superficial inquiries directed toward the pupil to find out what he knows. True, the good teacher has tried to formulate questions with a view to awakening the attitude of inquiry in the child's mind, but it is a poor substitute for the spontaneous, unrestrained inquiry of a child who is trying to adjust his new and old experiences and who is constantly seeking a new and broader environment to fill the aching void. The function of the teacher is to lead to "pastures new" in books, in nature, in passing events, and in laboratories. The finding of facts, rules, and principles being the objective point of this process, memorizing them ought to come easily to the child, and, of course, the retention of what is discovered is a necessary part of learning.

This sort of learning is much more than association; it is reasoning, according to Ribot,² who says that to simple association expectancy must be added before reasoning takes place, and that the question is a state of expectation equivalent to a conclusion in the empirical order. It is the effort of consciousness to unburden itself of the multiplicity and complexity of details and to find that sim-

² "Evolution of General Ideas," p. 25.

plicity which is great enough to compensate for the richness and variety it is losing, and this greatness consists in the fact that it is a general statement or law applying to new particulars and subserving some practical purpose.

At the risk of repetition, but for the advantage of greater clearness and emphasis, it seems best to give briefly in substance some of the statements of Mach on the origin of the problem which in a broad way applies to all inquiry. What state of mind leads to this awareness of the incompleteness of our experience? He says that it is most frequently brought about by the introduction of something new into experience. Those who follow a routine, practical life seldom are troubled with problems, but if their circle of experience is widened by something new to which they can not immediately adapt their thoughts, queries necessarily arise. He reminds us that the history of science especially teaches us that when the new, hitherto unknown facts of one generation clash with the older ideas of a former generation, the most new problems have arisen. Unless there is an incomplete statement or a problem already in the mind which a new fact or relation exactly completes, the result is a state of confusion which Mach describes as the state in which the problem is born. "If the results of the psychical partial adaptations fall into such contradiction that thoughts are driven now in one, now in another direction, if the unrest increases to such an extent that consciously and purposely a unifying thread is sought in this confusion, then a problem has arisen."³ The presence of something new will not bring about confusion where there is not even partial adaptation. For example, the child will not care for the discovery of a new planet, while the announcement of the discovery of a new kitten will arouse him to the greatest activity, and he instantly asks, "Where is it?" "May I have it?" "Where did it come from?" "May I play with it?" etc.

Introspection will doubtless verify this theory in the case of all adults who submit themselves to the test, and it is no less true in the case of children, so far at least as my observation goes. One object of education is to shorten the state of confusion and eliminate it by practise or habit where it is possible, *i. e.*, where a satisfactory adjustment or adaptation has been made in the best possible way by the directed effort of the individual himself. As Ribot says:⁴ "In short, we learn to understand a concept as we learn to walk, dance, fence, or play a musical instrument: it is a habit, *i. e.*, an organized memory." "General ideas are habits in the intellectual order." Having accomplished this sort of learning successfully will not lead to a petrified sort of life, as Rosseau feared, but will

³ *Op. cit.*, pp. 251 ff.

⁴ *Op. cit.*, p. 131.

give the individual the courage and the training and power to attempt new adjustments whenever the necessity or opportunity arises. The trained adult can master a slightly new situation or idea with surprising readiness, but for the child the process of learning is from confusion to clearness with many gradations. The first step toward clearness which a teacher can discern is the question, and the last is the answer, which should come from the child, if possible, as truly as the question.

Instead of the words "confusion" and "clearness," Ribot⁵ uses the terms "indefinite" and "definite" when discussing the theory of generals and particulars. He says: "Its capital error is in applying to the embryonic state of intelligence and of language formulæ that are appropriate to adult life only, to the growing mind, categories valid for the formed intellect alone. . . . The sole permissible formula is this: Intelligence progresses from the indefinite to the definite. If definite is taken as synonymous with general, it may be said that the particular does not appear at the outset; but neither does the general in any exact sense; the vague would be more appropriate."

The part that a teacher must play is that of causing disagreement between ideas, or ideas and things, sufficiently strong to put the child to working out the solution, and to guard against false agreements. As Mach says, when the disagreement is once clearly recognized, the problem stated, then it follows naturally that the next thing to be done is to seek the solution. This is the peculiarity of Socrates's method, who delighted to bring his hearer to such confusion that he could himself see that his own ideas did not agree nor could be acted on in a practical way. Not that one should adopt Socrates's good-natured sarcasm, in the case of children at least. In fact, the problems of just how far one is to arouse the contradictions and how much help the child is to receive at every step are to be worked out according to the subject-matter, the age and capability of the child, etc., and belong more to the art of teaching than to psychology. For example, I encourage a class in ethics to puzzle and work for weeks over some great principle rather than explain it to satisfy their curiosity before they have done their best. In the case of little people learning the multiplication table, after they have once learned the principle of multiplying, I advise teachers to use rapid drill, which the children enjoy if not too prolonged, and which is indispensable to skill in the use of numbers.

Wherever for some reason the child has not this awareness of incompleteness in regard to desirable objects, it does belong to psychology to suggest two very general rules for causing the desired

⁵ *Op. cit.*, p. 32.

awareness of incompleteness, the first of which is involved in the first quotation from Mach and is this: Begin with phenomena, observable facts, and then introduce the ideational elements not to be supplied by observation. The second is: Select those experiences to render incomplete which from their standing in the consciousness of the child will call for great, though not the maximum, effort in order to secure completion. For, as Ward suggests, "Objects of experience are not primarily objects of knowledge, but objects of conation, i. e., appetite and aversion," something on which to react, which call forth an attempt to nourish or to destroy.

L. PEARL BOGGS.

URBANA, ILL.

REVIEWS AND ABSTRACTS OF LITERATURE

Kants Methodologie in ihren Grundzügen: Eine Erkenntnistheoretische Untersuchung. OSKAR EWALD. Berlin: Ernst Hoffman & Co. 1906. Pp. iv + 119.

The object of this inquiry is stated to be the determination of the historical question whether "psychologism" or "transcendentalism" is the foundation of the Kantian theory of knowledge, and, thus, to lead to a general consideration of the relations of these two standpoints in philosophy to-day. After a preliminary sketch of the differences between ancient and modern methodology, with especial reference to the great influence that psychology exercises on contemporary philosophy, Dr. Ewald outlines his procedure. The basic difference between psychologism and transcendentalism is that, according to the former, all categories and principles of thinking are contents of consciousness or facts of intuition, whereas, according to the latter, categories are simply cognitive functions or conceptual values that can not be envisaged in the stream of consciousness. But there is, he says, a further distinction, not generally recognized, between *immanent* and *transcendental* or *metaphysical* psychologism; the former proposes to stick to inner phenomena, and is psychology without the soul; the latter transcends phenomena and assumes a metaphysical reality. The difference between transcendental psychologism and the transcendentalism of pure logic is that, whereas the latter regards the categories simply as an intellectual system of relations, an inventory of pure logical values without psychical existence, the former treats them as metaphysical psychical functions.

Dr. Ewald proceeds to a careful examination of the question whether immanent psychologism is legitimated by Kant. He conducts this examination under the four categories of quantity, quality, relation, and modality. Quantitatively, immanent psychologism asserts that *all* phenomena are inner psychical phenomena and finds in Kant's doctrine of time, as the form of all intuition, its support. But this doctrine must not be so interpreted. Kant is not dealing with psychical phenomena at all, but with the *a priori* conditions of knowledge. Qualitatively, the

argument is that the inner world is known directly, the outer world indirectly, and so the psychological becomes the universal method. Inner regularity is immediately perceived. The unity of apperception is a direct intuition. Against this interpretation Dr. Ewald maintains that Kant regarded our own soul life as phenomenal in the same sense that outer objects are phenomenal. For him the soul, the world, and God are not objects, but *functions*. Kant holds that there is no intuitive psychology. Consequently whereas, for Wundt, for example, the synthetic unity of apperception is immediately grasped, for Kant it is simply a thought construction or concept. Knowledge of the psychical is on the same basis as that of the physical. The regularity that may be found in inner phenomena is an ideal, not an intuited fact; and this ideal, if perceived, ceases to be an ideal. In terms of relation, psychical phenomena are held to be immediately present to consciousness, physical phenomena mediately. Wundt, in particular, represents this view. It was not Kant's view. In terms of modality, psychologism holds that the evidence for the psychical is greater than that for the physical. The psychical is fact, the physical inference. This view, again, is not deducible from Kant's doctrines, for it is essentially an appeal to a sensualistic principle of knowledge; whereas Kant grounds science on the necessary character of its concepts. Dr. Ewald sums up this part of his discussion by saying that psychologism tries to resolve logical categories into intuitions, whereas the unity of the world and that of self are both purely conceptual.

In briefer space Dr. Ewald considers, under the same categories, Kant's relation to transcendental psychologism. This is, in short, the theory that the synthetic activity of apperception, with the several categories, are functions of a transcendental subject. The creative principle of synthesis is never content of actual experience, but is, nevertheless, more than a unity of logical values. Dr. Ewald considers that the deduction of the categories in the first edition is strongly colored with this view, whereas in the second edition the deduction is more rigorously in terms of logical values. Transcendental psychology is involved in the philosophy of identity. Fichte, Schelling, Hegel, and Schopenhauer all represent it with differences of emphasis. Von Hartmann's doctrine of the unconscious, which is superconscious, is its logical outcome.

The transcendentalism of pure logic will eschew all metaphysical inquiries and restrict itself to a doctrine of logical values. It concerns itself only with the *meaning* of the categories, not with the question of their origin in terms of either an empirical or a transcendental psychology.

Dr. Ewald finds three methods of deduction of the categories in Kant. The first, which is prominent in the "Critique of Pure Reason," is the progressive or synthetic method, which to be carried out fully would involve the rigorous deduction of the whole system of first principles of knowledge from a single principle. This is the method of a transcendental psychology, since it requires the assumption of metaphysical principles. It can not be carried out. A second method appears in the treatment of the three stages of synthesis, especially in the first edition. Kant here seems to make his problem the deduction of perception. The

question seems to be as to the intellectual function of unity in perception, not as to the ideal unity of law in experience *überhaupt*. This method is not true to the spirit of Kant. The third method, which in Dr. Ewald's opinion is truest to the spirit of transcendentalism, is the *regressive* or *analytical* method, which he also calls the *teleological* method. Starting from experience or nature *überhaupt*, as involving both physical and psychical experience, it determines the logical postulates or values involved in the constitution of experience. From the ideal concept of nature it deduces the immanent conditions of nature as orderly experience; for example, in order that nature be possible there must be a strict law of *causality*, of *substantiality*, etc. This method leaves open the question of a transcendent unity of consciousness. It is metaphysically neutral.

The argument of the work is condensed, the style at times elliptical, and the discussion frequently hard to follow. Dr. Ewald disclaims making a contribution to "Kant philology," nevertheless the historical phase of his argument would have profited by fuller citation and reference. The arrangement of the discussions under Kant's four main categories seems somewhat forced. The work is very acute and well worth the pains spent on it. In my judgment, Dr. Ewald has shown conclusively that immanent psychologism has no legitimate foundation in Kant's theory of knowledge. The characterization of the distinction between a transcendental psychology, for which the synthetic unity of consciousness is a hyperempirical reality, and the immanent analysis, by pure logic, of the conceptual values involved in experience, if not new, is given fresh and instructive expression. I doubt, however, whether Kant would have admitted the finality of the distinction, and I question whether the so-called pure logic of experience can really be worked out to a theory of knowledge without being driven to the assumption of a metaphysical principle of synthesis. While it is undoubtedly true that a logic and theory of knowledge can not be based on a structural analysis of empirical psychical content, in short, on a psychology that sticks to a pure phenomenism, it seems to me that a functional analysis of the thinking process is at once the meeting point of psychology and logic and the starting point for a metaphysics of cognition.

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Immediacy, Mediacy, and Coherence. G. F. STOUT. *Mind*, January, 1908. Pp. 20-47.

This very timely contribution to current discussion of the epistemological theme is written primarily with the purpose of taking issue with certain positions maintained in the recent book of Mr. Joachim, "The Nature of Truth." Mr. Joachim and those who share his views maintain it is here stated, that the ultimate test of truth is systematic coherence of judgments; empirical data have a negligible function, if they have. "In the first place it is urged that the immediate ceases to be in becoming mediated. The gradual attainment of truth is

gradual dissolution of the relative independence and immediacy of what we call *data*. There would be *no data* for an omniscient mind." This emphasis upon mediation as the source of truth is connected with the doctrine that the degree of truth is proportional to the degree of mediation, and that only that judgment could be true which affirmed complete mediation.

This thoroughgoing distinction between mediate and immediate knowing seems to Mr. Stout to be of vital importance to the theory of knowledge. He rejects summarily at the outset the interpretation of this distinction which points to knowledge not of things, but of phenomenal appearance, of something whose being is "being for thought." The *crux* of the problem is in the theory of universals, and conceptualism is at the root of the whole difficulty. "The class universal is not a 'horse in general,' but what we call the 'nature of horses'; and this is just as essentially an aspect of reality as the particular existence of this or that horse." And the same is true of possibilities, or of what is really meant by the candid use of that word. "Given a general nature, we find it intrinsically *capable* of being exemplified in certain ways, independently of its being *actually* exemplified in these ways." That is the kind of thing it is. Glass is brittle, though it may not get broken. "Gold is malleable, soluble in *aqua regia*, of a certain specific gravity, etc. All these adjectives express ways in which things behave or would behave if certain conditions are or were fulfilled." In this way, then, universals and possibilities are not things that have merely "being for thought." "The knowing mind as such is in immediate relation not to a 'content' having being only 'for thought,' but to an object having a being and nature of its own." Accordingly no knowledge is mediated by contents which have "being only for thought." In this sense of mediacy, all knowledge is immediate.

In another and more reasonable sense, however, mediation is an important factor in knowledge. "If I grasp a man's hand in the dark, the presence of an arm and body continuous with the hand is cognized mediately. . . . Thus a cognition is mediate in this sense in so far as it comes to us through inference or in some way logically analogous to inference." But in this sense not all cognition can be mediate. Two sorts of immediate elements in knowledge are obvious—the kind characteristic of self-evident propositions, and the immediacy of feeling, what makes the difference between feeling a toothache and knowing that some one else feels it. The thing, however, which has the quality of immediacy is more than an immediate presence; if it is identified at all, if it presents an instance of cognitive experience, it is mediated by our previous experience and knowledge of similar things. As cognized it belongs to a context whence it derives its character as an object of thought. But the context could have no application or relevance except in so far as the immediate experience is provided and calls for interpretation. And it describes the facts better to say that the context is absorbed by the immediacy rather than that the immediacy is absorbed by the context. The experience is of a determinate *this*, which exemplifies its context.

In one sense, then, immediacy is a test of truth, but it is not one which affords a test that can be used "in the progressive development of knowledge." "It does nothing for the gradual displacement of mere belief by knowledge in the strict sense of the term," because such knowledge has to do with relations of systematic coherence. Accordingly, "the test of truth which is really operative in the development of knowledge includes an appeal to coherence as well as an appeal to immediacy." But both coherence and immediacy must be tested in testing for truth. The emphasis on coherence is an insistence on "the principle that the universe contains no *loose* elements." Yet, "if a system of cognitions has no guarantee, but mere internal coherence, it is a 'castle in the air.'"

Mr. Stout will not admit that the difference between his view and that of the thoroughgoing advocates of coherence is merely a difference of emphasis. "They do mean to deny that the factual immediacy fulfills the function which I assign to it. The denial of this belongs to the essence of their contention." As opposed to them, Mr. Stout contends that "immediate knowledge does not become less immediate by being mediated," and he explains the opposite opinion, held by thinkers of the type of Mr. Bradley, by a failure on their part to distinguish between the immediate judgment and "what they call the *isolated* judgment." The immediate judgment is not indifferent to context, although the latter remains implicit and inarticulate. "Whoever affirms anything affirms all its conditions; in so far as he knows them and has them present to his mind at the moment, he affirms them explicitly. In so far as he does not know or is at the moment oblivious of them, he affirms them implicitly."

"If this be so, it would seem that the judgments of finite minds are not necessarily false merely because they have an 'inarticulate background' or because they would be transformed for perfect knowledge."

The impression of the reviewer is that in this resort to the conception of an "implicit" background Mr. Stout has perhaps made larger concessions than he intended to make, concessions with which Mr. Bradley and Mr. Joachim might be abundantly satisfied. Mr. Stout accepts too readily the presuppositions of those he wishes to criticize, and upon the assumption that the character of knowledge may be determined by the assumed fact that objects of knowledge are details in a systematically interrelated and bounded universe no very successful difference of opinion may be possible. It is not clear that Professor Stout makes this assumption, but his opponents unquestionably do, and Professor Stout might have taken clear issue on this point with great advantage to his own position. For what is "implicitly" affirmed need not be the coherence of an entire cosmic system, but whatever coherence is subsequently made out. What assumption about the nature of knowledge could more effectually predetermine philosophical questions than this one of the "universe"? And is it a conception which the inquirer and searcher along the paths of science can not get along without, or is it a "fundamental" concept of a certain type of metaphysician? Professor Stout's article is admirably candid and discriminating, and the present reviewer may do it

injustice in feeling that the writer discusses the nature of knowledge rather with reference to the reverberations of a metaphysical tradition than to its empirical actuality and progress in humbler fields.

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JOURNALS AND NEW BOOKS

ANNALEN DER NATURPHILOSOPHIE. December, 1907, Bd. VI., Hefte 3 u. 4. *Psychographische Studien. I. Humphry Davy* (pp. 257-295): W. OSTWALD. - Davy belongs to the romantic rather than the classical type of investigator, in view of the rapidity of his mental activity; from this characteristic follow many others which make him a good example of that type. *Die Realität der sinnlichen Erscheinungen* (pp. 295-365): M. FRISCHEISEN-KOHLER. - In maintaining that the objective reality of qualities stands on the same basis as that of things, attention is particularly directed to weaknesses in the doctrine of specific energies, as usually formulated. *Die kollektiven Formen der Energie* (pp. 366-373): G. HELM. - *Zur Wissenschaftlichen Grenzvereinigung* (pp. 373-376): T. HAGER. - *Die Zyklischen Kausalreihen* (pp. 377-381): W. M. FRANKL. - *Die allgemeinen kausalen Grenzwerte* (pp. 381-384): W. M. FRANKL. - Of these four short articles each contains several points of interest. *Zur Kritik der Künstlichen Weltsprachen* (pp. 385-434): J. B. DE COURTENAY. - A defense of Esperanto against Leskien's attack, in which forty points are made. Finality, however, is disclaimed. *Zuordnung und Kausalität* (pp. 434-443): P. HAUSMEISTER. - *Kausalgesetz und Erfahrung* (pp. 443-451): P. FRANK. - *Die Kultur Bewegung* (pp. 451-459): W. FULDA. - *Das Kausalgesetz* (pp. 459-476): A. v. OETTINGEN. - Causation is diminishing energy and a differential process; effect is energy coming into play, and is a process of integration. A force should not be regarded as a cause, but as a condition, being always "dead" force. *Neue Bücher* (pp. 476-492): W. O.: J. Bresler, *Religionshygiene*. L. Stein, *Die Anfänge der Menschlichen Kultur*. M. E. Solvay, *Principes d'orientation sociale*. F. Waxweiler, *Esquisses d'une sociologie*. A. Mayer, *Los vom Materialismus*. W. T. Mann, *Christentum und Haeckel-tum*. J. Baumann, *Für freie Universitäten neben den Staatsuniversitäten*. *Inhalt*.

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. January, 1908, Bd. XXI., Heft 2. *Leibnizens Lehre von der Körperwelt als Kernpunkt des Systems: Fortsetzung* (pp. 145-165): M. LEOPOLD. Through the concept of development and the distinctions between phenomena well and ill founded, and between active and passive forces, Leibniz is able to subordinate mechanical cause to purpose, and the physical to the spiritual, without reducing the former to a mere symbol or illusion. *Die Staatslehre des Mariana* (pp. 166-196): B. ANTONIADES. - The Spanish Jesuit, Mariana (1600), differed from Hobbes in recognizing

the influence of family life, of speech, and of man's feeble body, in regarding the condition of war not as the original, but as a transitional condition, and in adding to the essential functions of a state the realization of the virtues of truth and kindness. He requires a dual sovereignty, spiritual and temporal. *Beiträge zur Kantkritik* (pp. 196-217): E. SCHWARTZ. - Kant's uncritical admission of an epistemological absolutism, on which his argument is based, can never again be adopted. *Die Religionsphilosophie Teichmüllers* (pp. 218-239): D. A. MÜLLER. - The religious life does not participate in historical development, but reveals always the same types, of which three were distinguished by Teichmüller, with subordinate varieties. *ΠΥΘΑΓΟΡΑΣ* (pp. 240-252): W. SCHULZ. - Pythagoras ingeniously crystalized his teaching by giving to the letters of his name numerical values, which in various combinations suggested at once his doctrines and the sacred character of his name. *Jahresbericht. Bericht über die deutsche Literatur der Letzten Jahre zur vorkantischen deutschen Philosophie des 18. Jahrhunderts* (pp. 255-284): T. EISENHAUS. - An examination of six works on Leibniz, four on Lessing, and three on Herder, which have appeared since 1899, for the most part. *Berichtigung. Die neuesten Erscheinungen. Historische Abhandlungen in den Zeitschriften.*

Bruce, H. Addington. *The Riddle of Personality*. New York: Moffat, Yard & Co. 1908. Pp. viii + 247. \$1.50 net.

Bruno, Giordano. *Opere italiane. II. Dialoghi morali*. Con note di Giovanni Gentile. Bari: Guis. Laterza & Figli. 1908. Pp. xviii + 512. 7 l.

Calkins, Mary Whiton. *The Persistent Problems of Philosophy*. Second revised edition. New York: The Macmillan Co; London: Macmillan & Co. Pp. xxiv + 575. \$2.50 net.

Essays Philosophical and Psychological. In honor of William James, professor in Harvard University, by his colleagues at Columbia University. New York: Longmans, Green & Co. 1908. Pp. viii + 610. \$3.00 net.

Ossip-Lourié. *Croyance religieuse et croyance intellectuelle*. Paris: Felix Alcan. 1908. Pp. 32. 2.50 fr.

NOTES AND NEWS

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

GENTLEMEN: My review of Dr. Hyslop's volume in your pages has brought about a thirty-page rejoinder in the *Journal of the American Society for Psychical Research*. I can not readily convince myself that two persons holding such differently angled views of the cosmos, of science, and of evidence are likely to be drawn to a common point of regard by much argument. Yet a thirty-line statement seems desirable.

Dr. Hyslop's wielding of the old-time charge of materialism seems futile. We differ as essentially as to what is implied in that term as in the meaning of such conceptions as the spiritualistic phase of life. But centrally as to the logic of evidence, the significance of science, the mission and interests of psychology, I can not but regard Dr. Hyslop's argument as evasive and confusing; and I am quite content to leave this difference to the judgment of trained and interested judges. The entire attitude (or may I say physiognomy?) of such books as Dr. Hyslop's seems to me unrelated to the procedure by which science expands, and seems affiliated to what is often termed a propagandum. For this reason, again, we must pursue our several ways.

When Dr. Hyslop undertakes to assimilate the logic of his position to the mode of reasoning by which argon was discovered, I renew my protest. Had some "psychical" physicist announced the discovery of "psychium" as alone sufficient to explain the moving of chairs apart from physical contact, the analogy might hold. I see no reason for burdening psychology rather than physics with a step-science that shall garner the mysterious phenomena, and leave the ordinary crop to the direct heir.

Lastly, as to facts. We differ as radically as to the mode in which facts appear in science, what they look like, and what they mean, as we do as to the emergence and value of hypotheses. The word "fact" as thus used lost its power to inspire terror in me long before I read the words of Dr. Holmes, which are quite too emphatic to be here cited—as, indeed, I have no temptation to cite them—but which set forth a very pertinent sentiment: To call such and such an alleged observation a "fact" is no more and no less an expression of bias than it is to maintain a fully developed and dogmatically fixed hypothesis. This is the fallacy so flagrantly and elaborately exemplified in the writings of M. Flammarion, who at the beginning of his investigations in "psychic" (s. v. v.) science assumes an attitude which he would most tentatively assume at the end of a laborious astronomical research. In many a field "facts" are but the external counterpart of the inner view. Naturally, differing as we do, Dr. Hyslop and I must differ much as to what we shall call a fact, and as to how we shall explain certain other facts which we both recognize.

Very truly yours,

JOSEPH JASTROW.

UNIVERSITY OF WISCONSIN,
March 20, 1908.

THE following summary of a paper by Dr. Shadworth Hodgson on "The Idea of Totality" read before the Aristotelian Society at its last meeting is from the *Athenæum*: "Philosophy is the attempt to frame a consistent system of knowledge based upon data which are immediate at once in consciousness taken subjectively as a knowing, and in that same consciousness taken objectively as an existent. The special difficulty of establishing a consensus of individuals in any such system is the difficulty of harmonizing the analyses of the immediate conscious-

ness of individuals taken as a knowing, when that same consciousness taken as an existent is incommunicable to other individuals. The distinction between percept and concept, and the nature of the relation between them, are a cardinal instance of this difficulty. And it is to this distinction and this relation that the interpretation of the idea of totality must be referred. Taken as a concept, totality implies finitude; conceiving is limiting, and a total is a finite whole. Taken as a percept, totality implies infinity; both in time and in space, as inseparable elements in experience, there is always a *beyond* to any content which we can specifically perceive or imagine: a *beyond* which, owing to the continuity of these elements, belongs to one and the same universe, and makes it in its totality an infinite whole. There is, therefore, a *beyond* to every conceptual or finite total. In trying to conceive the universe we can not but conceive it as an infinite percept. Two consequences follow. One is that we have to think of our universe as including innumerable kinds of specific feelings, of which, nevertheless, we can form literally no specific imagination, and also an indefinite number of formal elements analogous to those which we know as time duration and space extension, but the specific nature of which we are equally unable to imagine. The other is that, since the universe of our specific experience is known to us as infinite, we can frame no positive conception or theory explanatory either of its nature or its genesis. Infinity precludes explanation, because it implies the reality of something which no specific idea that we can frame is adequate to represent."

A COURSE of lectures on "Aspects of Evolution" has been in progress at the University of Minnesota under the auspices of the Philosophical Club. The program was as follows: February 27, Evolution in Chemistry, by Professor Frankforter; March 5, Evolution in Astronomy, by Professor Leavenworth; March 12, Evolution in Geology, by Professor Sardeson; March 19, Evolution in Biology, by Professor Clements; March 26, Evolution in Psychology, by Professor Miner; April 2, Evolution in Ethics, by Professor Wilde; April 9, Evolution in Philosophy, by Professor Swenson.

THE American Society for Psychical Research Section "B" has issued a circular of directions to those who are willing to aid the society in carrying on its work, and a circular containing a list of questions, with instructions for answering them. The circulars may be obtained from Dr. James H. Hyslop, 519 West 149th St., New York City, to whom all communications should be addressed.

THE Macmillan Company announces "The Elementary Psychology of Feeling and Attention," by Professor Edward Bradford Titchener, of Cornell University.

MR. A. O. LOVEJOY has been called to the professorship of philosophy in the University of Missouri, and will resign his position in Washington University, St. Louis, at the end of the current academic year.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

RELIGIOUS VALUE¹

IN the "Zend-Avesta" Zarathustra asks Ahura Mazda, "O Maker of the material world, thou Holy One! which is the first place where the earth feels most happy?" When this question is answered, Zarathustra asks, "Which is the second place where the earth feels most happy?" and so on to the fifth. Ahura Mazda answers that the places where the earth feels most happy are: (1) The spot on which one of the faithful steps when he offers sacrifice to the lord of the wide pastures. (2) The place whereon one of the faithful erects a house with a priest within, with cattle, a wife, children, and good herds within, and where all the blessings of life thrive. (3) Where one of the faithful cultivates most corn, grass, and fruit; where he waters the ground that is dry, or dries the ground that is too wet. (4) Where there is the most increase of flocks and herds. (5) Where flocks and herds yield most dung.²

This is an early description of religious values. It suggests that such values are relative to a people's stage of culture and to the needs that are strongly felt. What is more significant is that values are here arranged in a hierarchical order: the god, the family, the fields and the herds; or, cultus value, social or ethical value, and economic value. What is most remarkable is that ethical value is made to include economic value, and cultus value to include both, apparently without being exhausted in them.

Something like this is characteristic of the religious attitude universally. Through all the differentiations and enrichments of human purpose, a god, or some functional equivalent, has served as a concrete expression of a tendency to subsume particular values in a single type in such a way that they are not only included within it, but also raised, so to speak, to a higher power of themselves. The great religious systems differ from savage religion nowhere more profoundly than in the degree in which they thus integrate, and likewise idealize, the recognized values of life. The gods of the

¹ Read at the meeting of the Western Philosophical Association, in Chicago, January 1, 1908, as a contribution to the symposium on value.

² See "Sacred Books of the East," Vol. IV., Oxford, 1880, pp. 22-24.

savage lack consistent character; they represent now one, now another vagrant desire. But the great religions give character to their gods, and they strive toward some monistic conception, whether monotheism, or pantheism, or the abstract ethical monism of Gautama. Moreover, in these religions the god becomes an impersonation of a general critique of all values, with a view to raising the general plane of life.

This double character of religious value—its immanence in or partial identity with all values, and its transcendence of them as their ideal unity and consummation—this double character gives rise to two opposed notions of religious value, one of which represents it as merely transcendent of other values, the other as merely immanent in them.

On the one hand, religion is said to deal with spiritual rather than material or sensuous goods; or with eternal rather than temporal goods; or with reality as distinguished from phenomena, or with unity as distinguished from multiplicity.

The practical consequence of separating spiritual value from the values of the common life is a thirst for special revelations, submission to an authoritative church as their agent and dispenser, and priestcraft and ceremonialism as means of dealing with the merely transcendent world. When eternal good alone is recognized as religious, the result is asceticism, and the dominance of motives that grow out of contemplation of death and the hereafter. Defining religious good by the distinction between reality and phenomena tends to identify religion with metaphysics. When the distinction is that between unity and multiplicity, the tendency is toward mystical absorption and loss of personality. The obvious one-sidedness of all these types of religion arises from the effort to separate religious value from ethical, esthetic, noetic, and economic value. If the separation should ever become complete, there religiosity would pass over into irreligion.

On the other hand, exclusive attention to the other aspect of religious value, its immanence in all values, leads toward the identification of religion with the esthetic or ethical or intellectual life. In such cases the tendency, according to circumstances, is either to ignore what is characteristic of religion, or to include it by subreption. As instances of subreption may be cited the worship of beauty and the worship of humanity. That genuinely religious aspirations express themselves in these forms there is no reason to deny. But in both cases the specific religiousness is possible only through an at least momentary forgetting of the particularity of the value that occupies the foreground of attention.

Let the worshipper of beauty, at the moment of his adoration,

realize that the heavens and the earth, and all music and art and poetry and human loveliness, are merely a passing pageant, and that he himself is nothing but a part of the same pageant, the whole merely the flickering of flames that are burning themselves out—let him clearly realize this, and the value coefficient that makes his love of beauty a religion will vanish. He worships either because, dimly or clearly, he feels in the object what Wordsworth so often describes, or because he assumes a standpoint of appreciation that entirely transcends himself as a mere mortal.

Similarly, the worship of humanity may include emotions of tenderness and sublimity; it may include a sacramental communion as mystical as that of the priestly chalice; it may contain a sense of final value. Yet the object of such worship is hardly the actual men and women who come and go; rather, it is the humanity that never was on sea or land, not visible humanity, not even any future humanity that can be foreseen by sound historical imagination.

The purpose of these statements is purely descriptive, and they should not be taken as carrying either approval or condemnation. The sole aim is to set forth what sort of values men strive toward when they are religious. Whether religious men, or any of them, are self-consistent or not, indeed, whether or not the whole religious enterprise of humanity is a delusion, is not a matter of interest at the present moment.

The point that we have reached is this: Any kind of value may be a religious value, but only on condition of a certain inner self-transcendence whereby the particular value demands complete organization of itself with other values, and ideally complete realization of the unitary whole. The organization of values is what Plato calls justice, a principle that apportions the various goods and also expresses itself in each of them. Plato saw that such a principle must be identical with piety, which he calls justice in our relation to the Deity. This means, I suppose, that the inner organization and self-criticism of all values is possible only by the representation to ourselves of an ideal personality to which we ascribe authority over our actual personalities.

The complete realization of the unitary whole of values that religion seeks implies, of course, what Höffding calls the conservation of value. I can not think, however, that Höffding's notion of a possible conservation of value otherwise than in the conservation of personalities really represents the religious motive. It is true that philosophical Brahmanism, the teachings of Gautama Buddha, and the views of some pantheistically inclined minds among us represent the consummation of life as consistent with the loss of personality. But these are rather speculations of the few than religions, and I

believe that they all involve the fallacy of the man who is willing to be damned for the glory of God. As James points out, such willingness to perish rests upon an unrecognized doubling of the idea of self, whereby the man who supposes himself willing to be damned for the glory of God really thinks of himself as standing apart from this damnation and approving and enjoying his own piety! The conservation of values seems to imply—at least it is taken by religion as implying—that persons, who alone constitute social reals, who alone are ends rather than means—that persons, or at least those who have attained to ethical life, should not lose it through any unavoidable process of nature. This is really a demand that a concrete end, once reached, should really be an end, and not a mere means toward some other apparent end which in its turn shall pass away, leaving no actual social end or finality.

Further, ideal completeness of social value is represented in the notion of an ideal social being who satisfies, on the one hand, our desire to be completely understood and, on the other hand, our impulse to give ourselves in utter devotion to an object completely worthy of such ethical love.

Such desires are at once ethical and religious. So, also, the desire that social conflicts and natural evils that seem to hinder ethical ends should ultimately cease or even be made to serve these ends, is both religious and ethical. It is ethical in its quality; it is religious in the ideal completeness that it gives to ethical value. Wherein, then, is religious value distinct from ethical value? The answer is that religious value is not distinct from ethical. It is ethical value itself in its ideal completion and in union with all other values similarly ideal and complete. The sphere of religious not less than of ethical value is social life. In this social life the two refer to the same persons, facts, conflicts, purposes. The difference is that ethics, of itself, takes into its purview only a part of the social ideal that religion accepts. Ethical value and religious value are of the same kind, but one climbs only part way up the ladder which the other essays to mount to the very top.

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DISCUSSION

PRAGMATISM AND ITS DEFINITION OF TRUTH

THE present article consists of two brief papers, written at an interval of a very few days, the one before, the other after hearing Professor James's remarks in the discussion on "The

Meaning and Criterion of Truth" at the meeting of the American Philosophical Association at Ithaca, December 26-28, 1907. The papers thus represent two phases of the author's reaction to pragmatism as at present set forth, the latter of them being more closely adjusted to Professor James's conception of what is fundamental in that doctrine, and the difference in the points they select for criticism has therefore a certain instructiveness. When I add (with Professor James's consent) that, in private discussion since, we have reached what appears to be a complete agreement as to the facts in the case, he accepting the account of them given in the second paper, and that we continue to differ only as to the portion or aspect of these facts to which it is proper to apply the term truth, it will be seen that my strictures, severe as they may seem, touch rather an incompleteness which has hitherto existed in the mode in which the theory has been conceived, and the (as it seems to me) psychologizing form in which it has been stated, than its empiricist and anti-intellectualistic substance. At all events the view that the paradox of present pragmatism may be removed by supplementing it, and completing the doctrine in its own sense, is commended to readers of the JOURNAL. When its one-sided practicalism and its anti-Platonism or psychologism are corrected, there still remains, in the writer's view, a core of sound empirical theory at once new in philosophy and of lasting importance.

I

Current pragmatism is such a decidedly mixed affair, it exhibits such a combination of healthy human tendencies with questionable logic, that one must make some sharp distinctions and even turn some sharp corners in discussing it.

Truth, we are told by Professor James, "consists in the consequences, and particularly in their being good consequences."¹ Here we must distinguish between two sorts of consequences. (1) Future sensible experiences, either actual or that might have been actual if the subject had willed it. The latter case covers what Professor James calls "indirect verification." When I look at a clock I do not trouble myself to verify that it has works, but proceed on the assumption that it is a fully constituted clock and tells or means to tell the right time. So far the doctrine is simply empiricism, and I am at a loss to see what motive there is for rebaptizing it pragmatism. "Practical consequences," used of this first class of cases, is an inexact and question-begging phrase. But (2) there are the cases where we *can not* verify, and must form our judgment according to the favorable or unfavorable results of action. Here the

¹ "Humanism and Truth," in *Mind*, N. S., 1904, pp. 457-8.

unverifiability may be accidental, and due to present mechanical difficulties, or essential, as in the case of some religious truths. In either case the favorable results of action constitute only a presumption, and it can not be said that truth *consists* in these really practical consequences, but only that they are the reason why we think things true.

Here we come to a most important disjunction: between pragmatism as a theory of *what truth means* and pragmatism as an account of *why we think things true*—of what thinking things true means. Professor Dewey seems to me to give on the whole a correct account of the psychology of thinking things true. One might say that he discusses pertinently the denotation of truth, but leaves the question of its connotation untouched.

That pragmatism can not pretend to be a theory of the connotation of truth, and to give its definition, appears when we consider that consequences lie necessarily in the future, whereas the objects of knowledge are many of them present or past. Only where what is asserted is a future fact, either a physical happening or a human experience, can the future bring its verification in the proper empirical sense. Pragmatism is at its origin, I think, an account of the truth of general propositions—of physical laws and principles—which apply to the future as much as to the past, and the confirmation of which can therefore be obtained from future experience. Is it true that the attraction of gravitation varies inversely as the square of the distance—will this simple law account for the movements of Mercury as well as for those of the other planets? The future can tell us, though even if it answers affirmatively it is only by inference that we apply its deliverances to the past. Is it true that Napoleon landed in Provence on the last day of March, 1814? This is not a question for the future to answer, and it does not “depend on the consequences” whether it is true or not. The consequences can only tell us whether to think it true. Is it true that animals have souls, or are they merely senseless machines? Still less does this depend on the future. It is a question for the animals to answer now, but unfortunately they can not do so in a way logically to fix our belief. If, in a word, we take pragmatism as a definition of truth and not simply as an account of what things are true, it does not apply to assertions of particular events or particular existences except so far as these lie in the future. And, even within these limits, as we have seen, what is called pragmatism is really empiricism and not properly pragmatism at all.

Truth is necessarily a relation of some sort between a proposition and an object, and not between a proposition and our actions or the results of those actions, except so far as the actions and results

happen themselves to be the object. Pragmatists admit that some truth copies its object—the truth of evidence in court, for instance, lies in correspondence with the past, rather than in its effects on the fortunes of those present; the truth about the Antarctic regions, whether there is land or water at the South Pole, lies in copying. But this is, in effect, to admit that truth everywhere is a relation to the object, and not simply to our future acts or experiences.

Of what sort is this relation? The fundamental fact underlying cognition—and here I come to a part of the question where our judgment must be much more favorable to pragmatism—is the need for adjustment of relations to objects that promise us advantages or threaten us with danger. To adjust our relations properly we must somehow *take account* of the object. Very symbolic cognition will suffice for the purpose, provided it leads us to the right kind of practical behavior. The act is, one may almost say, a portion of the cognition. But I fail to understand how our cognition can be a symbol at all, or adjust us to *this* object rather than to another, unless it contains an element of copying, be it only of the most abstract relations. Algebra gets along with mere letters in place of numbers because it reproduces the relations between numbers with the most faithful exactness. And it is a fair question whether the secondary qualities of matter do not answer their purpose because the primary ones render more or less exactly the true relations of things; whether the atomic theory and the law of the conservation of energy are not true because they correctly reproduce the general relations of things, and not simply because they are a convenient shorthand for appearances. The phrase “conceptual shorthand” presents only one side of the matter; translate general assertions into the particular assertions they represent, and the truth of the latter becomes a matter of copying.

I should be inclined (but I can lay no claim to competency in these logical questions) to assume that wherever there is truth there is some amount of copying, however small, and that this it is which constitutes the idea a fit symbol and enables it to call forth the expedient reaction.

If so, we must maintain against Professor James that an idea *does* “shoot over the head of experience and hit its reality”—not “every time,” but every time that it does hit it. The conformity of idea to object in which truth consists, and which is the indispensable basis of right action, is simply one of those high-leaping or, as they might be called, saltatory relations which, like similarity, pass direct from one existence to another, and do not have, like relations of space and time, to run along humbly through the tissue of experience. To seek to resolve truth, metaphysically, into processes of

leading and arrival, into unbroken concrete experience, is to eliminate and suppress the Platonic or ideal element in things. Are not objects really similar before they are discovered to be so? Is not an egg really like another egg, or a circle really like another circle, even though no spectator experience the pleasant surprise of comparing them? To deny real similarity preexistent in things, to seek to resolve it into somebody's experiences of comparing and equating, is to turn the logical into the psychological.

Now the enterprise of the pragmatists is at this point slightly ambiguous. Do they mean to maintain simply that the similarity of similar things is a matter of concrete experience, yet so that the things always provide for us in advance a similarity which we *must* detect in them—which would be a comparatively venial fault; or do they mean to maintain that the logical relations of things (past and present things at least) are not antecedently fixed, and to say in so many words that there's nothing either true or false but thinking makes it so? In their own interests I venture to hope that their position is or will be decided to be the former.

There is, then, and will be for the pragmatists if they decide this weighty issue aright, a standard in things, which is independent of anybody's cognitive experiences, and this is what I understand logicians to mean by the absolute. In other words, pragmatists if they reach grace will make their peace with the absolute.

Pragmatism will still stand firm in at least five senses: (1) as a protest against converting this standard into a psychological being, or giving to it any other existence than that which it has as resident in fact; (2) as an account of the psychological processes by which we decide whether given propositions are true or false; (3) as a warning against making these processes too short and easy, and against confounding the fixity of truth with the fixity of our present conceptions of truth; (4) as a needed reminder that cognition exists for the sake of action, and requires in ordinary cases to be no truer than just sufficiently to evoke the right behavior; (5) as a defense of the important and too much neglected truth, that human action can affect and modify the future.

II

Professor James would have us discuss the problem of truth without any metaphysical presuppositions, simply on the basis of ordinary conceptions. What is the relation between this desk which I shake, and the idea of the shaking which I form in my mind—the relation in virtue of which this idea is said to be true?

I am not so sure that the problem can be quite freed from metaphysics. For the question of truth arises twice: in connection with

the relation between an idea and the corresponding experience, and in connection with that between the experience and the object. Only on the assumption that, in the latter case, experience and object are identical is this not so; an assumption, I am convinced, erroneous and responsible for many of what I can only call the vagaries of current pragmatism. If we consider that an idea is in its turn an experience and that the corresponding sensible fact is its object, we may say that truth is in every case a relation between an experience and an object.

A relation of *validity*. And that which is valid is the cognitive reference of the experience to the object, the transitive or transcendent relation by which the experience pretends to be *of* the object and a satisfactory basis for action with regard to it even in advance of being put to the test of future experience. Cognitive reference is thus logically prior to truth; and the campaign of the pragmatists may more truly be said to be against a non-empirical and intellectualistic conception of cognitive reference than against such a conception of truth.

Cognitive reference, again, is a relation supervening upon the purely *existential* relations between experience and object, which latter are prior and more fundamental. And, since this is so, there is a fair presumption that the problem of the existential relation between experience and object, the question of the nature and limits of the independence to be ascribed to the latter, may not be indifferent to the problem of the nature of truth.

There is much significance, then, in Professor James's declaration² that his theory is based on a thoroughgoing epistemological realism—on the view that cognition and object are distinct and separate existences. And his problem is to bridge the gap between them, in such a way that the cognition may truly be said to have to do with or be *of* the object, without appealing to a mysterious faculty of self-transcendence, of a different order from the concrete experiential things it unites. This can only be done by the aid of the *context*; by taking account of the existences that intervene between experience and object and connect them into a single world. An idea and an object that were the only existences, and that swung, as it were, *in vacuo*, could, as he rightly says, have cognitive relations only by a mysterious leap of the idea towards the object.

So far I am entirely at one with Professor James, and the criticism I am going to offer may therefore be said to be from his own point of view. My contention is that he takes too narrow a view of this connecting context, restricting it solely to future occurrences and ignoring the past and present connections that make

² Made in opening the discussion at Ithaca.

the idea *already* a fit cognitive substitute for and a thing pragmatically aimed at the object; that he and his followers are thereby led into a paradoxical form of statement of his theory that drives sensible people along with intellectualists to the opposite view, as being alone consistent with common or rather with good sense.

1. There are the *causal relations* by which the cognition has been called forth by the object, or by other objects of the same kind, and which secure that the image is a fit symbol to represent the object and to set going the reactions appropriate to it. Thus a memory is the effect of the experience it recalls, the idea of any fact (*qua* image and not *qua* concept) the effect of previous encounters with that fact, etc.

2. There are the *spatial relations* which at present connect the object (if it now exist) and the cognitive experience, or at least the brain-event with which that experience varies uniformly, and which hold the two, so to speak, in relation to each other, much as the spatial relations of intervening objects hold a well-aimed gun in relation to the mark it is going to hit.

3. Resulting from the causal relations, there is the *resemblance* (running from portraiture to the most abstract symbolism) which makes the image the right one among all our images to let loose the action pertinent to *that* object. Call it correspondence, conformity, relevancy—what you will: I am not contending for an abstract connection irrespective of facts, but for the particular connection, the particular form of resemblance or correspondence, which the totality of the facts, when considered in their concrete *whatness*, found. And I fully admit, and indeed expressly contend, that the abstract relation depends for its entire content on the concrete complexion of the facts, and is tied down to them, and neither operates on nor in any way determines them from without, being a mere expression of what they are.

Such, then, are the connections for the recognition of which I call, and which antedate and make possible the connections by which the idea (in some cases) leads up to and verifies itself upon the object. The pragmatist contention as at present formulated is as if one should say that the correctness of a sportsman's aim is not merely proved by, but consists in, his actually hitting the bird. But, surely, it consists rather in his holding his gun at a certain angle, such that, given the laws of physics, the bullet or shot must pass through the body of the bird. To contend that the aim is *made* correct (truth, we are told, is something "made") by the process of hitting, and that if it were not for this subsequent process there would be no sense in saying that the sportsman aimed correctly at

all, is to maintain a violent paradox, which must discredit one's theory in the eyes of sober and sensible men.

Pragmatists, in short, not content with emphasizing the important truth that knowledge is designed for and is incomplete without action, have gone to the extreme of maintaining, in effect, that there is no knowledge apart from successful action at all. To theoreticalism they have replied, not by defending the equal claims of the practical, but by a practicalism as exclusive as was the doctrine opposed. Such a practicalism is in effect either skepticism or agnosticism—whichever you please. If it treats the independent object as non-existent, it is skepticism. If it treats it as unknowable and negligible, it is agnosticism. It shares with Berkeleianism and post-Kantian idealism the defect of almost the whole of modern philosophy, of supposing that an experience can reveal only itself, or, if it reveals anything beyond it, can reveal only an unknowable ultra-mundane entity, and not another experience, a part of the same world to which itself belongs.

III

While Professor James and I now agree as to the facts, I fear some serious disagreement still exists between us as to the proper naming of them, and particularly as to the *locus* of the thing named truth. I seem forced to say that truth is predominantly at least a matter of resemblance or copying, and that what is additional to this is rather to be accounted as utility than as truth. He seems to take truth in a large sense in which it ceases to mean something true about the object, and signifies mere adaptation to it; any view is true that helps us to act rightly, whether it conveys anything about the object or not. (To help us to act rightly, it must, of course, at least convey or imply something about the object's relations to us; so that perhaps one might say that he conceives truth as having to do with the object plus its relations to us, I as having to do solely with the object.)

It is important, as was observed before, to distinguish between pragmatism as a theory of objective reference and pragmatism as a theory of truth. I agree with him that the reference of the idea to the object can not be established without taking account (ideally, at least) of the totality of concrete connections, including the workings; but I should say that truth lay not so much in the causal relations by which the idea is called forth or in those by which it works, as in that relation of correspondence which makes it possible for the idea to work—or rather (this is an important addition) *in the relation of correspondence plus the spatial or mechanical relations that hold idea and object in position towards each other.*

Suppose the world should come to an end at this moment: would my idea that Cæsar was assassinated on the Ides of March be any the less true because by hypothesis it can have no consequences? *The example shows that truth consists rather in the potentiality of the consequences than in their actual occurrence. Now this potentiality, when you consider it, is exactly equivalent to the relations of space and of correspondence which predetermine what the consequences shall be.*

Truth, then, is anterior to the consequences, and does not consist in them.

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THE SUBCONSCIOUS AGAIN

IN the issue of this JOURNAL under the date of January 30, 1908, Dr. Prince gives me a severe trouncing for my misunderstanding and misinterpretation, as he thinks, of Professor Janet's position as expressed in my review of the latter's contribution to the symposium on the subconscious published last year in the *Journal of Abnormal Psychology*. Now, while I am temperamentally averse to indulging in rejoinders to hostile critics, the charges against me are made so robustiously and are based upon such thoroughgoing misconceptions of what I actually said that I can not altogether keep silent. I quite heartily admire the spirit of martial vigor with which Dr. Prince has come to the support of his foreign colleague, and it may have been his very zeal that led him astray. One almost despairs at times of securing mutual understandings in controversial writings, but I can hardly think that my text was so obscure as to be entirely responsible for the error into which Dr. Prince falls of attributing to me opinions about Janet the entertaining of which would convict me of unpardonable stupidity. In the face of these confusions I fear that in future I can not altogether suppress a feeling of diminished confidence in this writer's various reports and discussions.

In the first place, Dr. Prince is misled at the very outset into confusing the unlabeled characterizations which referred in a general way to the several papers of the symposium, and applies to Professor Jastrow's paper the remark that was directed entirely to that of Professor Janet. Then with the erroneous notion in mind that I was regarding Janet as "probably to be reckoned on the side of the opponents" of the subconscious, Dr. Prince proceeds to distort my further remarks into an assertion of the belief that Janet has

now recanted and has thrown over his allegiance to the psychological interpretation of the subconscious; and he expresses bewilderment at my placing of Janet among those who accept the physiological interpretation. No such belief was ever in my mind or was ever expressed by me. That Janet was referring to the "subliminal" type of theory, and not to the mode of interpretation now known as "psychological," was as obvious to me as to Dr. Prince. The fact was clear enough that Janet disowns as his (disavows) all theories, whether subliminal or such as touch "the great problem of the connections between soul and body, between thought and brain," preferring not to be embarrassed with speculations in the face of the many clinical problems which seem to him to press forward for solution and to be of paramount importance. Moreover, if Dr. Prince will now be good enough to give Professor Janet's paper a careful rereading, I think he will find that the inconsistency with which I charged it is not the consequence of my own misreading, but is to be found in the paper's own structure. As an instance of this, is it not a glaring inconsistency to state in one place, as Janet does, that the word "subconscious" is "a simple clinical observation," and in another place to argue that back of the phenomena of somnambulism, automatic writing, and allied matters we must suppose a consciousness because the actions involved are like those which in normal persons are conscious? Observation is not interpretation and interpretation is not observation, and any scientist who confuses the two in his writings must stand convicted either of intentional evasion or of inconsistency of thought.

As to whether I have erred in my understanding of Professor Janet's position is a matter which I will not undertake to discuss here. Such a discussion would be of slight interest to more than two persons. Moreover, it must be remembered that I was not discussing Janet's position as such, but was only reporting and commenting upon the exposition of it contained in this particular paper. After a careful rereading of this and after a reconsideration of the entire matter, I am quite ready to abide by my characterization of Janet's paper as given on page 526 of Vol. IV. of this JOURNAL.

I wish now to take advantage of this occasion, if I may, and broach one or two matters which seem to me to merit serious discussion.

Dr. Prince is convinced now more than ever that only those who have a first-hand knowledge of pathological phenomena are qualified to take part in a discussion of their interpretation, and he uses the illustration of the Martian canals to elucidate his point. "What would an astronomer say to my views on the canals of Mars," he writes, "when I had never even seen the lines on the surface of that

planet through a telescope?" Now this illustration, it seems to me, is particularly apt as making for the very view against which Dr. Prince is contending, and I can not refrain from developing it a little. Suppose, then, that the astronomer puts forward in explanation of the Martian markings some theory of the distribution of water from the melting polar caps which meets the eye of an hydraulic engineer. The latter regards the theory as irreconcilable with the principles of his science and forthwith exhibits the unsoundness of the astronomer's position. Is the hydraulic engineer estopped from meddling in the matter because he has never viewed the surface of Mars through a telescope? And if he did view the planet and study its photographs, would he be a bit better equipped to pass judgment on an interpretation of the canals which involved problems in pure hydraulics? It is knowledge of hydraulics and not knowledge of astronomy that would wield the master hand in this matter of interpretation.

Now, it is well-nigh impossible for all of us who are modestly trying to be psychologists to become at the same time first-hand gatherers and testers of pathological facts. In many ways this is to be regretted, of course. But when a pathologist makes use of a psychological interpretation of his facts, he is treading on our territory and is dealing with matters in which we claim to have a certain amount of expertness. And have we not the same rights as the hydraulic engineer to squirm and protest when the pathologist seems to do violence to psychological principles? Of course I do not for a moment mean to say that a pathologist, or any other scientist, should confine himself to the mere gathering of facts. Every one should engage to his utmost in interpretations and explanations, for without these the getting of facts would be but an unilluminated routine. But what I do wish to insist upon is that when the field of interpretation is psychological the psychologist has full rights to play the critic, provided, as I have elsewhere said, he can trust the collector's facts. About this last point I shall have something further to say in a moment.

In commenting on my treatment of his own contribution to the symposium Dr. Prince expressed surprise that I "overlooked the force of the evidence summarized in the third, fourth, fifth, sixth, and seventh classes of evidence" which he brought forward. Now, while I did probably do Dr. Prince an injustice by neglecting to state that he presented several considerations drawn from as many diverse forms of automatic writing, I considered that my criticisms against the unwarranted worship of *continuity* were applicable in large measure to these cases as well as to those that preceded them. But I had a further reason for not discussing these cases. It seemed

to me a waste of effort. When I read such accounts of automatic writing, I have a feeling somewhat akin to that which I have when a person comes to me and after giving a vivid description of the doings of some spiritualistic medium triumphantly asks how these doings are to be explained without the supposition of spirit manifestation. My usual reply in such instances is that if events happened in the way described nothing short of a miracle can explain them. There are two principal reasons why I have this feeling when reading accounts of automatic writing. In the first place, I have long been disposed to think that reporters of automatic phenomena have been wont to display an artless naïveté towards the statements of their subjects which is almost as great as that of the investigators of spiritistic phenomena who refrain from searching the persons of those under investigation for fear of seeming to impugn their good faith. In saying this let me not be supposed to mean offense to any one in any way. But in my opinion just this needs to be said by some one. One does not feel that the bare facts of the case have been presented in their sheer nakedness. One is almost certain that inferences—apparently slight, but, perhaps, crucial in their import—have been mingled with the facts. The special infusion of inference with fact that I have here in mind is such as occurs when the assertions and denials (usually the latter) of the subject are taken at their face value as representing the subject's actual experience. And, what is the real misfortune of the matter, the account states: "the subject did not notice this," or "the subject knew nothing of what preceded," instead of what was probably the fact, namely, that the subject *said* she did not notice this, or *said* she knew nothing of what preceded. If space allowed, many an illustration of just this thing could be cited. An instance occurs near the foot of page 73 of Dr. Prince's paper in this JOURNAL, where one reads: "After finishing, it was found that she had not noticed the figures." Now, the denials of hysterical patients, or of other highly suggestible subjects, that perceptions and thoughts were present are hardly to be taken as evidence that such forms of consciousness were not experienced. It is to the highest degree probable that the subject knows well enough that some sort of an investigation is in progress, that her general attitude of mind is that of ready complacency and cheerful willingness to assist the investigator in every possible way by reporting to him those very things which he is most eager to find, and that the very questions of the experimenter either suggest the shade of reply expected or act as powerful suggestions which inhibit the power to recall many important states of consciousness which were actually experienced. Indeed, as a matter of fact, it seems too often as if the subject were now regarded as a stupid automaton

who could not possibly suspect that something was up, and at the next moment as one whose introspective deliverances were to be accepted as unquestionable, accurate, and final. It would be absurd, of course, to claim that the pathologists are blind to these and other possibilities of error and deception, but certainly many of their writings are calculated to create the impression that they are allured by the charms of a dramatic narrative away from the pursuit of the relatively insipid details.

When, therefore, one is challenged to explain reported cases of automatic writing (or cases of other so-called subconscious phenomena, for that matter) on any other hypothesis than that of a coactive consciousness, one is thrown into the state of mind to which I referred above as taken, and quite appropriately taken, towards reports of mediumistic performances, to which may be added many accounts of sleight-of-hand exhibitions, and many anecdotes of animal behavior which purport to prove the capacity of brutes to reason.

But, in the second place, not only is it true that many reporters of hysterical and other automatisms reveal an unwarranted artlessness in accepting their subjects' statements as scientific verities, they err also, I am convinced, in giving us only a fragment of the entire situation. In reading their accounts one may well be smitten with the sense of an unfinished narrative, of a story not all told. I can illustrate what I have in mind by reference to a fresh case of automatic writing which Dr. Prince brings forward in his paper in this JOURNAL, already referred to several times. The attempt is made to prove that the subconsciousness of the subject is engaged in arithmetical activity while the primary consciousness is fully occupied with other matters. Briefly stated, the case is this. *BA* is a double personality, *B* knowing *A*, but *A* being ignorant of *B*. When hypnotized *B* becomes *b*. Both *B* and *b* claim to be coconscious with *A* when *A* is uppermost. Now, it was arranged with *b* that she should subconsciously calculate the number of seconds intervening between two given times of the day, this to be done, of course, while *A* was in the ascendancy. *A*'s attention was to be engrossed by the writing of some familiar verse, and the figures on the basis of which the subconscious calculation depended were to be written "unobtrusively" on the margin or in the corner of the sheet used by *A*. The agreement is carried out. *A* writes the verse, talking in a lively fashion the while, and simultaneously the hand automatically writes the result of the calculation, which was to find the number of seconds elapsing between 1.43 and 3.39. To be sure, the result was incorrect, because of an error of two minutes in the first subtraction, but the multiplication by 60 in the reduction to seconds was correctly performed. But now one would like to know many things which

the account does not give. Did the subject's eyes turn at any time to the unobtrusively written figures? If not, how near to the latter was the nearest portion of the writing? Did *A* have no suspicion that something in the nature of an experiment was being performed upon her? Did she have any curiosity as to what was going on or wonder why she had been set to write a bit of verse? Was there no fleeting consciousness of the hand's activity, followed, perhaps, by complete amnesia of it? Was the subject accustomed to make this variety of calculation, not necessarily in the course of similar experiments, but in general, in the ordinary course of her experience? When the hand was told that it was wrong (as it was told), precisely what happened? How, that is, is one to figure the mechanism of addressing a hand and carrying on a conversation with it? In such cases as this does the primary consciousness know of the conversation, at least to the extent to which an outsider overhears a telephone conversation? These and similar questions one would like to have answered, for it may be that if *all* the facts were given the mystery would be as much reduced as when we have the full and true account of the performances of a Hermann or a Kellar.

Of course, the replies to several of the above questions are practically unobtainable, for many flashes of consciousness, perhaps of the utmost significance for the hand's activity, may have been experienced by the subject and then immediately and irrevocably forgotten. If this subject was as alert as the account states, it is not altogether rash to assume that a good deal was going on which inevitably failed to get reported. However this may be, the real point is that the investigator has no right to assume that the subject's report of her own consciousness is an accurate report of the total experience that this primary consciousness has passed through.

Furthermore, just how is one to understand the process by which the two coexisting consciousnesses share the same sense organ, as in this case they did the eye, and as in many of Janet's cases they do the ear? In this case was the subconsciousness using the periphery of the retina for seeing the figures, and if so, at what favorable moment was this act of subconscious vision carried out? It must at least have been when the eyes were at rest, for not even a subconsciousness, I presume, could read what was cast on the periphery of a moving retina. In Janet's cases were sounds so selectively received by the ear that whispers reached only the subconscious, while ordinary tones of voice were received by the primary consciousness? I am not aware that the mechanism of this sorting out of the materials of perception has ever been discussed by the advocates of the subconscious, yet it seems to me to be a matter of some considerable importance, and there may well be facts in this connection which would prove of moment.

What I have said will suffice, I think, to suggest some of the difficulties and perplexities which confront me when I read the various claims made for automatic writings as evidences for the subconscious. It is the conviction that there are still many unknown quantities in the matter and that these very unknown quantities may themselves be the key to the whole problem, that I feel the futility of endeavoring to find a fully satisfying explanation for the cases of automatic writing thus far reported.

Of the many forms which theories of the subconscious take in the hands of its various advocates I am quite free to admit that Dr. Prince's variety is the least unacceptable of them all. He has pruned away the sundry extravagancies which are in so many cases but products of a riotous imagination unrestrained by sober facts. There is no tang of the mystic "subliminal" about his theory, nor, if I understand him, does he believe that each and every one of us is attended by a subconsciousness which does much of life's business for us.¹ On his theory, again if I understand him, the manifestations of the subconscious appear predominantly in pathological cases or under conditions of artificial dissociation. Furthermore, it is explicitly recognized and acknowledged by Dr. Prince that the subconscious is a product of scientific interpretation and not a fact of observation.²

In the issue of this JOURNAL of February 13, 1908, Dr. Marshall suggests that the word "subconscious" itself is partially responsible for the lack of agreement between advocates and opponents, the latter being "accustomed to think in terms of consciousness as the equivalent of awareness," and having "never gone beyond the objection that to speak of subconscious consciousness is a contradiction in terms." Now, I am entirely sure that in saying this Dr. Marshall has quite misapprehended the situation. Dr. Prince has been so careful to state that he prefers the terms "coconsciousness" or "coactive consciousness" that only a careless or casual reader could fail to grasp what he at least has in mind. I can not think, therefore, that any clarification of the situation would be introduced by the terms suggested by Dr. Marshall, "inattentive consciousness" or "subattentive consciousness." Indeed, in point of fact—though I have no right to speak for them—I do not believe that these terms would be acceptable to the advocates of the subconscious; for in their view the latter is not only a detached coconsciousness, but often a coattentive consciousness as well. But I quite agree with both Dr. Marshall and Dr. Prince that in discussions of this sort the word "subconscious" is unfortunate. Personally, it seems to me that

¹ See *Psychological Review*, Vol. XII., pp. 126-139.

² See *Journal of Abnormal Psychology*, Vol. II., pp. 68-69.

Dr. Prince's term "coconsciousness" is the least ambiguous expression for what is meant in these discussions that has yet been suggested.

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REVIEWS AND ABSTRACTS OF LITERATURE

Zur Einteilung der Wissenschaften. C. STUMPF. Berlin: Reimer. 1907. Pp. 94.

This monograph naturally invites comparison most immediately with the utterances of Wundt and Münsterberg under the same title. The results of such comparison can not be simply drawn off, however, in statements of this sort: that Stumpf holds psychology to be inseparable from philosophy; that he denies it a place among the natural sciences; that he makes it the fundamental member of the group of *Geisteswissenschaften*. The meaning of these propositions is indeterminate apart from the whole scheme, which seems worth presenting in some detail.

The most superficially noticeable thing about it is its rejection of the attempt to put the sciences into a unitary system. Stumpf sets up at the outset a canon of historical responsibility which forbids it. The sciences are—among other things—empirical existences; and neither their relative importance nor their characteristic differences can be done justice by a simple branching tree. It is not the lines of division of actual scientific labor that we are bound to respect—no one transects these more lightly than Professor Stumpf—but we must respect the domains of the sciences themselves, which cross and overlap. History is not wholly other than politics, physics is not purely a science of laws as opposed to particular facts, etc. Stumpf makes use of five independent principles of division.

In no case, however, are sciences divided on the ground of method. Methods and problems, the author observes, are circumstances which depend on and vary with the subject-matters: the ultimate divisions of science will, accordingly, follow the ultimate divisions of *Gegenstände*, the objects of conceptual experience. (1) The distinction between physical and psychical objects is the ground upon which sciences have "von jeher" been divided as sciences of nature and of spirit, *Natur-* and *Geisteswissenschaften*. This division is, indeed, incomplete; there is a series of "neutral sciences," four in number, not concerned distinctively with either kind of object; but it is well that they should be thrown into just this relief. For *Phaenomenologie* (the theory of *Erscheinungen* as they appear), *Eidologie* (the theory of structure of logical systems and value systems), and the general theory of relations may properly be termed *Vorwissenschaften*, constituting as they do an organon for every other science (p. 39); whereas metaphysics, the *Nachwissenschaft*, presupposes and unifies the results of all other sciences. (2) If we distinguish objects as individual and general, and the sciences thereby as sciences of fact

and sciences of law, we provide a place in the former category for history. (3) To place mathematics we must separate homogeneous from non-homogeneous objects; the homogeneous object, the object of mathematics, being defined as a whole whose parts show only a single kind of difference, and can thus be conceptually substituted for one another by a single type of variation (p. 78). (4) The difference between theoretical and practical science is likewise a difference of object. The distinctive concern of practical science is not with objects that are, but with objects which at once ought to be (the *Werte*, by definition) and are realizable. (5) The unity of the several sciences which we include in philosophy can be expressed only by a further dichotomy of objects. Philosophy deals with the "most general" objects. But this bond is insufficient apart from the fact that all philosophical disciplines depend upon psychological materials and results. Philosophy is thus to be defined as "the science of the most general laws of the psychical and of reality überhaupt." This definition, which represents philosophy as a *Gesetzwissenschaft*, is subject to the reservation that the history of philosophy is an integral part of philosophy itself (p. 92). So much for the surface of the scheme.

This surface is a fairly consistent product of the theory of knowledge here at work. We are struck by the frequency with which these divisions of science are run back to ultimately "given" differences in cognitive experience. Objects, indeed, are not given, they are results of concept building; but the difference in objects may be traced to ultimate differences in the material for concept building given in experience. The difference between physical and psychical objects, for instance, has its root in a duality in immediate experience, that, namely, between the stuff, the *Erscheinungen* (the primitive phenomena of sense and feeling) and the *psychische Functionen* which have these *Erscheinungen* as their content. In every consciousness, the ultimate stuff of experience and the psychical activity immediately concerned therewith are two disparate, indissoluble, given facts (p. 10). Similarly, the distinction between individual and general objects is taken as given. We observe individuals; we also observe species, universals. With this simple refutation of nominalism goes the possibility of escaping psychologism as well as apriorism. Psychologism is simply the inheritance of the older empiricism. It has no way of treating "ideas," including the ideas we call norms, except as things of life, having causes, births, temporal careers, and deaths. To the old apriorism ideas were nothing but eternal meanings. To Stumpf and a considerable group of writers, among whom Husserl is the most thoroughgoing, they are neither one thing nor the other precisely; they are observable facts, they are phenomena, they are persistent objects in a world of like universal objects. They are not, indeed, independent phenomena of the Platonic type, for they do not exist except as the contents of psychical functions; whence, however free from genetic psychology logic and ethics may become, it is folly to consider their governing ideas in independence of descriptive psychology. Precisely as in immediate experience psychical function and *Erscheinung*

are given together, so in thinking and willing there are given together the function and its governing idea. Stumpf thus finds himself able to bring logic and the theory of values together under the head of eidology, the science of ideal structures (*Gebilde*), the "sachlichen Korrelate psychischer Funktionen" (p. 33). So, further, the distinction between terms and relations is a given distinction. Relations are neither terms nor forms of thought: "Die Aehnlichkeit ist nicht ein Vergleichen, das Ganze nicht ein Zusammenfassen." Relations are observed with the terms; they are objects of coordinate rank (p. 37).

This tendency to rest upon irreducible differences in experience is of a piece with the anxiety to avoid presuppositions. The author will not deduce, but report, his system. He consistently objects to the use of such metaphysical criteria as "overindividual" to mark off groups of objects (p. 34). But the comment seems justified that what we are relieved of in metaphysics is made up in the strain imposed upon our eye for the given, and at the further cost that none of our questions are answered. A "phenomenon" is a finality about which, when it is reported, nothing more can be said. There is, indeed, an aspect of every object of thought which is unique, and has, therefore, to be taken as given—but this is just the aspect that is worthless for definition. We become empirically perfect and empirically dead at the same moment; there is a certain meaning-blindness which comes of the very stress of the resolve to be utterly objective. And this is true even if we avoid the ironical fate that dogs this type of thought—that of discovering objects where there are none: whence among the students of pure experience there must always be as much diversity of opinion about what is given as among the old apriorists about what is self-evident. It is not impossible that all these dichotomies upon which Professor Stumpf depends are really given; but the only way to make sure of it is to deduce them.

It is fair to say that this necessity is partially recognized. The distinction between physical and psychical objects, for instance, is a matter not only of disparate material, but also of different concept building; and the concept building is different because the problem is different. But clearly all derivation of the peculiar object of a science from its peculiar problem is at the expense of the maxim that sciences are primarily distinguished by their objects. Hence Stumpf, having derived his object, carefully purges from it all trace of the process by which it is found. The problem of physics is the complete causal formulation of the flow of *Erscheinungen*; to accomplish this it is driven to build concepts from which the quality of the *Erscheinungen* is eliminated (pp. 12-13). It is led to define a world of objects, self-sufficient, independent of consciousness, a world to which the fact of sensation is accidental, indifferent, unaccountable. The business of physics is with these objects; that is to say, it has nothing to do with sensations. The circumstance that it takes its beginning in and makes its report to sensation plays no part in its procedure. The situation is paradoxical, but if we define science in terms of its object alone there is only one thing to do. Stumpf accordingly repudiates most explicitly that conception of physics which with

Berkeley, Mill, and Mach makes its responsibility to sense experience the core of its definition.

Physics and psychology are thus simply independent. They have even a buffer science between them. For psychology, concerned as it is with the psychical functions solely, not with their contents, has no more than physics to do with sensations as *Erscheinungen*. The description of sensations and sensation series, the formulation of their purely immanent laws of contrast, harmony, etc., the investigation of the properties of the phenomenal spaces of touch and sight (in no sense identical with the space of geometry, nor with the very different space of physics—pp. 65 ff.), also of phenomenal time—all this volume of scientific labor falls to a neutral science, the *Phaenomenologie* aforesaid. It is true that the complex sciences of nature, especially of organic nature, make free use of sense qualities in their definitions (p. 19); and that the complex sciences of spirit, i. e., the sciences of society, of the state, of language, religion, and art, defined as sciences of complex psychical functions (p. 21), have to recognize important physical factors in their materials (p. 23); but in each case at the nucleus lies either a psychical or a physical object, and this furnishes differentia enough.

In the case of history, again, Stumpf relies on the motive of a science to determine its object, and then defines the science by the object pure and simple. The contrast between law and fact is ultimate and irreducible (p. 62); a fact is simply a truth which is not necessary. Whether there are any sciences of pure fact depends on whether it is possible for a pure fact to have any value. And that such may be the case the history of historical investigation is called to witness! History is not concerned to deal with every fact, but with the facts regarding the temporal realization of values: these facts are themselves of immediate value. It is not inconceivable that "historical laws" might be formulated—what interferes is not human freedom, but the complexity of the situations—but even were this accomplished these laws would segregate away from a residual mass of fact; and the fact would still be the proper object of the historical spirit. As an "immediate value" is presumably a value for which no reason can be given, our understanding of history remains at this point, that a given interest and a given field of objects have happily met.

It seems to me a distinct merit of this treatise that it shows so clearly the impossibility of bringing unity into our conceptions of science with the object as principle of division. Unless we go at once to the truth, and say that every science has one unique individual object—physics, the material world; history, the spiritual content of time; etc.—if by the objects of a science we mean the unit terms of its various hypotheses, nothing is more certain than that the fields of science overlap. There can be no private property in the small fry of science. We merely escape absurdity by admitting at once that history and economics, acoustics and art, logic and mathematics, have much *language* of this sort in common, and tend to have more. But this fact seems of itself a sufficient criticism of the theory that the object *per se* can throw adequate light on the

relations of sciences: if the field of objects is criss-crossed in different directions it can only be in the interest of different problems. Is it not time to discard the assumption that, given a field of phenomena, there are to be recited an invariable set of problems that *go with it*?

But the reviewer is guilty of some disproportion in giving so exclusive attention to the first principles of a work in which second principles and fine observation are the prime movers.

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Orientation in the White Rat. HARVEY CARR and JOHN B. WATSON.
Journal of Comparative Neurology and Psychology, January, 1908.
Pp. 27-44.

This study presents the results of experiments on the white rat under two sets of conditions. First, rats that had learned a labyrinth path were started at one of three different positions fairly well along in the course of the maze, and were sometimes headed in the right, sometimes in the wrong direction; the object being to study their methods of correcting their orientation and picking up the right path. Secondly, again after the animals had learned the path, "certain of the runways were either shortened or lengthened. The disturbing effect of these alterations upon the rats' conduct and their methods of learning to adjust themselves to the new conditions were observed."

1. In answering the question as to how a rat set down with the wrong orientation can correct it and take up the labyrinth habit at a point other than the starting-point, the authors make two assumptions: on the one hand, that kinesthetic data alone may suffice to orient a rat, and, on the other hand, that if the animal does orient himself by kinesthetic data, he will require a period of random wandering about before the proper cue is obtained, longer than would be necessary if orientation were secured by some "distance sense." The first assumption is based upon Dr. Watson's former experiments on the white rat, in which it was shown that individuals deprived of sight and smell could learn a maze as well as normal individuals. Just here, without questioning the main point at issue, a word of comment may be interpolated. The argument from defective to normal rats is based, the writers say, upon the supposition "that the processes employed as control by the defective rats are the same as those which would have been employed by them had they been normal." This supposition seems to the present reviewer to be an unsafe one. What the performances of the defective rats show is that normal rats probably *can* learn a labyrinth by kinesthetic cues alone; it does not show that they *do* depend wholly upon such cues. However, in the present research the authors need to show merely the possibility of kinesthetic guidance. The second assumption, that orientation only after a period of random running about will indicate the use of kinesthetic cues, though recognized by the writers as not absolutely self-evident, may pass as probable.

The results showed that orientation was not immediate, but that "on the average, the rats turned around 2.5 corners in each trial before being able to pick up the cue," and that "inside the alleys, they changed the direction of exploration 1.3 times per trial." There were, indeed, a few cases of immediate orientation, the greater number having been made by two out of the eight individuals tested, and during the last half of the experiments. It is concluded that most of the cases of orientation were probably through the use of kinesthetic cues, that two of the animals may have used distance cues, and that there was some evidence that immediate orientation might be acquired by repeated experience of the situation. It is a puzzling problem that is presented by this process of *learning* to make immediate orientations. If a rat, on being put down at a certain point in the maze with his head the wrong way, immediately turns and starts out in the right direction, can it be a kinesthetic cue that makes him turn? How can he get a kinesthetic cue before he has made any movements? We should have been glad to have the inner aspect of this learning more fully discussed. Two of the eight animals, by the way, were blind, and showed no difference in their behavior on that account.

2. When, by the removal of the middle section of the maze, four of the alleys were shortened without in any other way affecting the path, rats that had learned the labyrinth in its previous state were much disturbed in traversing it. They ran headlong into the wall at the turns in the shortened passages, and on later trials made errors, hesitated, and attempted as a "compensatory adjustment" to make the turn too soon. After they had fully learned the shortened maze, the missing section was replaced, and the rats then tried to make the turns in the lengthened alleys at the point where they had turned in the shortened path.

The general conclusion drawn by the authors from their experiments is as follows: "When an automatic series of movements in man is disturbed, the 'movement to come' can no longer be released by the afferent impulses arising from the movement just effected. Visual, auditory, or tactual impulses (cues) are then utilized, i. e., the adjustment becomes, e. g., momentarily visual-motor. A few movements made in response to these distance sense cues may suffice to restore the kinesthetic-motor character of all the ensuing adjustments. Likewise, when an automatic series of acts in the rat is disturbed, the 'movement to come' can no longer be released by impulses arising from the movement just preceding. But at this point the analogy between the behavior of rat and man breaks down. The former apparently has no well-developed distance sense cues," but "the rat has the possibility of receiving kinesthetic cues which function for 'control' exactly as do visual cues in man." These kinesthetic cues the rat receives "by traversing at random any 'unit' of the maze." "On this supposition, man's kinesthetic-motor habits would differ from the rat's mainly in this, that whereas the former utilizes distance sense cues for reestablishing automatic adjustments, the latter utilizes kinesthetic cues."

These experiments certainly furnish interesting evidence of the

function of kinesthetic factors in the rat's behavior. But it seems to the present reviewer that the authors' conclusion rather over-emphasizes the difference between man and the rat in the matter under consideration. On the one hand, they report an observation that leaves open the possibility of the rats' having at a certain point been influenced by a visual cue. This observation was as follows: In the shortened maze, the six normal rats had no difficulty with one of the turns, while the blind rat "found as much difficulty with this corner as with any of the others." Now before reaching this particular turn, the rats had to pass a certain *cul-de-sac* opening, *B*. Could the normal rats have used this opening as a visual cue warning them of their approach to the turn, a cue which the blind rat must, of course, have lacked? There was another turn which was preceded, so to speak, by a *cul-de-sac* opening, *H*, and with this turn the normal rats did have trouble, but the writers point out that the *cul-de-sac* in this latter case had been open for some time, while the one in the former case had been recently opened. "One may argue that the normal rats had neglected the opening *H* as a visual cue in the course of the long series of trials which was given them in the learning maze from the first, while the recent opening of *B* had attracted their 'visual attention,' and they had learned to utilize it as a visual cue." While admitting the possibility of this, the writers think it improbable, for "if the rats can see the opening *B* so as to react to it, it seems that they ought to be able to see the opening into any alley at the turn and use it as a visual cue." But is it not at least conceivable that a visual cue which is given *before* a turn is reached can be more readily utilized by so rapidly moving an animal as the rat, than one which is given only at the instant when the turn must be made?

On the other hand, does a human being regularly use distance sense cues rather than kinesthetic cues in taking up an interrupted series of movements? The reviewer, from experience in playing the piano from memory, has no hesitation in saying that a breakdown in the series of movements can be repaired much better by kinesthetic cues than by distance cues. If the movements have been once really learned, that is, if one movement has come to set off the next directly, the best way of putting oneself right after a mistake is not to look at the hands, but to start at an earlier point in the series and run through the movements again, looking away or closing the eyes. In other words, the behavior of the human being best known to the reviewer is precisely like the rat's in securing orientation. And if a human being traversing a labyrinth and missing the path would be more likely than a rat to seek for a distance cue, is not this because movements of traversing a labyrinth would in a human being be too slowly made ever to become perfectly automatic? Any series of movements performed as rapidly by a human being as those of scampering through a maze are by a rat—for example, the movements in an intricate dancing step—would be most readily corrected by the use of kinesthetic rather than distance cues.

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Concerning the Intelligence of Raccoons. L. W. COLE. *Journal of Comparative Neurology and Psychology*, Vol. XVII, No. 3, 1907. Pp. 211-261.

In his study of the raccoon Professor Cole presents the results of one of the earliest series of experiments on the mental life of the plantigrades. The author had six young animals under observation, four males and two females. The experiments covered a period of eleven months, beginning with the animals when about eight weeks old.

He takes as his criterion of intelligence the ability of the animal to make new adjustments, or modify old ones, in accordance with the results of its individual experience. The apparatus used was that of Thorndike and Kinnaman, with slight variations. This was supplemented in discrimination experiments by a card showing device original with the author. The motives for learning under experimental conditions are assigned as hunger, an apparent desire to be occupied, and loneliness. The author concedes the "trial and error type" of learning, but thinks he finds ground for the presence of distinct memory images, including memory of the difficulty of locking devices. So-called "play trials" appeared, in which, after loosening the fastenings and escaping from the box, the animal refused to take food.

In the rapidity of forming associations with single fastenings, the raccoon is classed above Thorndike's cats and next to the monkeys. The time records show greater and more numerous variations, however, than in the case of either cats or monkeys. "All the raccoons showed a tendency to abbreviate their acts," which seems to the author to require for its explanation the presence of either an image or notion. Some would probably differ with Professor Cole at this point. The limit of memory for the most complex associations is placed at 147 days. In the opinion of the reviewer this is much too short for adult animals, his own results fixing the limit as above 250 days.

In tests for visual discrimination, the author found ability to distinguish color, but is quite ready to concede that this may be and probably is rather a discrimination of brightness. Experiments with form and size gave high percentages of right choices, the animal becoming practically perfect in performance in less than 250 trials. A high degree of ability to discriminate the pitch of sounds was also developed.

Professor Cole made rather extended repetitions of the putting-through experiments of Thorndike. He concludes, on the contrary, that "putting through after failure certainly and always results in making the next trial a success, but does not have nearly as much stamping-in power as a self-innervated movement. Further, if the act which the animal is put through is the one which will remain the easiest and most convenient for him throughout the tests, irrespective of his position in the box, he will never vary from it." In cases where no order for the performance of acts is determined the raccoon was never able to mechanize into a settled routine. The author argues that the ability to learn by being put through gives strong experimental evidence of the presence of ideas. "It seems to me," he says, "that animals which are utterly unable to learn save by

innervating their own muscles must be devoid of ideas." Professor Cole also attributes to his raccoons the ability to perform a "species of counting," which appeared in experiments involving the display of color cards in twos and threes.

By way of summary the author makes the following statements:

1. "In the rapidity with which it forms associations the raccoon seems to stand almost midway between the monkey and the cat. In the complexity of the association it is able to form it stands nearer the monkey."

2. "Long practiced motor associations show a good degree of permanence."

3. "The raccoon discriminates form, sizes, and tones. It also discriminates cards of different colors and intensities."

4. "I have no evidence that the raccoon imitates its fellows."

5. "The raccoon learns various acts from being put through them, and thus gives evidence of the presence of visual images."

Since the present paper is considered by the author as preliminary in character, we are led to expect that at some future time more extended experimental data will be offered in support of his contention that the raccoon can count and give evidence of mental imagery. It is not impossible that the apparent counting ability may find similar explanation to that given by Professor Pfungst in his study of "Kluge Hans," the young stallion of Berlin. It is rather unfortunate that Professor Cole should have confined his entire paper to the results of his laboratory experiments, in view of the fact that he also had many observations on the development of instincts in the young animals during the period of the first twelve months, which marks the stay of the young with the mother. Data have been given, however, which offer ground for comparison with those from experiments on other animals under similar conditions, which was the limit set for the study.

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JOURNALS AND NEW BOOKS

REVUE DE METAPHYSIQUE ET DE MORALE. March, 1908.
Le Dieu de Spinoza (pp. 129-163): V. BROCHARD. - There is no real difference between the concept of God in Spinoza's "Ethics" and that in the "Tractatus Theologico-Politicus." *Du rôle de la logique dans la formation scientifique du droit* (pp. 164-189): E. MEYNIAL. - Logically, law appears as the matter of a purely deductive system, but it is also a means of effecting the equilibration of conflicting interests. From the first of these facts it gets its stability, from the second its plasticity and adaptability. *La méthode en chimie* (pp. 190-213): A. JOB. - Chemistry explains species by assemblages of atoms, and metamorphoses by transference of energy, but atoms and energy are not definitive concepts for it. Progress is to be looked for from taking physics for an instrument and guide, and biology for an application and model. *Études critiques: La*

philosophie de Wundt (pp. 214-243): H. NORERO. *Discussions: Réponse à M. Bergson* (pp. 244-245): E. BOREL. *Réponse à M. Bonasse* (pp. 246-247): G. LE BON. *Questions pratiques: Le syndicalisme réformiste* (pp. 248-259): F. CHALLAYE. *Supplément*.

Barrus, Clara. *Nursing the Insane*. New York: The Macmillan Co. 1908. Pp. x + 409. \$2.00 net.

De Garmo, Charles. *Principles of Secondary Education*. Vol. II: *Processes of Instruction*. New York: The Macmillan Co. 1908. Pp. xi + 200. \$1.00 net.

Furry, William Davis. *The Esthetic Experience: Its Nature and Function in Epistemology*. *The Johns Hopkins Studies in Philosophy and Psychology*, No. 1. *Philosophical Monographs of the Psychological Review*, Vol. I., No. 1. Pp. xv + 155.

Royce, Josiah. *The Philosophy of Loyalty*. New York: The Macmillan Co. 1908. Pp. xiii + 409. \$1.50 net.

NOTES AND NEWS

THE sixth congress of psychology will be held at Geneva from August 31 until September 4, 1909. Owing to the great number of papers presented at previous meetings, it is found desirable to limit the discussion to certain problems of current importance, and to require the publication in advance of papers intended for the congress, in order that comment upon them may be adequate and profitable. In particular it is desired that the question of terminology in psychology receive attention, and that equivalent terms in different languages be fixed. Also an exhibition of apparatus is desirable, inasmuch as printed descriptions are far less satisfactory than actual demonstration. The committee for the congress, consisting of Th. Flournoy, president, P. Ladame, vice-president, and Ed. Claparède, general secretary (Châmpel 11, Geneva), invite suggestions.

WILLISTON S. HOUGH, Ph.M., of the George Washington University, has resigned from the department of philosophy and has been elected professor of psychology and pedagogy.

MR. L. BREBANT, M.A., Oxon., has been appointed assistant to the professor of moral philosophy in the University of St. Andrews.

DR. EDOUARD ZELLER, professor at the University of Berlin from 1872 until 1895, died on March 19, at the age of ninety-four years.

EDWARD ELLIOT RICHARDSON, Ph.D., has been elected instructor in philosophy in the George Washington University.

MR. J. H. WOODS has been promoted at Harvard University to the rank of assistant professor of philosophy.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

A GENETIC STUDY OF MAKE-BELIEVE

THE advantage of our subject lies in the fact that the phenomena of make-believe are very abundant and right at hand. The familiarity of it is, however, likely to prove a disadvantage in that the most common and ubiquitous facts of the world have been treated for so long a time in habitual ways that it is extremely difficult to approach them from a fresh point of view. A citation of some instances of make-believe, showing different aspects of the subject, may serve as the proper mode of introducing the subject.

A number of boys were observed coasting upon a long hillside. Several reached the top together and stood for a moment to catch their breath. Suddenly one shouted aloud, "I'll be the hearse," and dashed down the hill. Another said, "I'll be the pall-bearers," and then dashed after the first. A third roared louder still, "I'll be the mourners," and too went down the hill. All the others followed in line, each assuming some part in the funeral procession. A certain boy who was assigned the task of pulling the milkweeds from the oats incited and sustained himself in the work by playing that the weeds were so many Indians on the warpath. The New England farmer who wanted his boys to gather the rocks from a certain field and throw them in a near-by ditch was unable to keep them at work until he invented the illusion that the rocks were water, there was a house on fire in the ditch, and the rocks must be thrown onto it to put out the fire. The report reads that not only was the field cleared, but the boys asked for other fields to operate in. The children who had littered the sitting-room floor with wood and paper were induced to clean up the muss they had made by make-believing that each stick and piece of paper was a dead Spanish soldier that must be carried to the cemetery for burial. The woodbox served as burying-ground. The common element to be found in each of these four incidents seems to be the thinking of things to be something else than they are or have been thought. This phenomenon shows several different aspects, as may be seen from the following examples: The boy at table pats his mashed potato into the form of a pie, cuts it into pieces and eats it under the illusion that it is pie. His glass of

water is poured out into a saucer and drunk as "hot tea." He is induced to drink his cup of milk by the suggestion that it is "beer." Again, his potatoes are covered with gravy and pricked full of holes on top with his fork to make them look pretty. "They taste better then." Potatoes are roasted in ashes and dirt and eaten with avidity, when the boys get to be "Revolutionary soldiers." "Robbers and highwaymen must often subsist upon poor and meager fare, and they have been known to eat roasted corn that was burned to a crisp." In these the poorer food is thought to be the better and so eaten as the better is eaten. We scarcely need to go back to pre-Socratic times to see how the worse is made to appear the better reason.

A third aspect may be seen in the following incidents: Several children were playing that a given space between two boxes was the ocean, and commerce was represented by passing articles back and forth from one box to the other. Inadvertently one child stepped off his box and was remonstrated with for being in the ocean. He immediately suggested that they play he had on rubber boots. Several others were playing house, when a lady came along and stood to watch them. Several children protested, saying they would not play if she stayed. One suggested that they play she was a visitor, and then the play was resumed with greater vigor. The boy who had asked for bread and butter with jelly was disposed to refuse bread and butter alone. It occurred to him to play that the butter was "white jelly." When a boy's requests are refused, he immediately grants them in his own fancy. When he expresses a desire for something and it is not forthcoming, it appears right then and there in his mind that he did not want it. When he is coerced into doing what he had refused to do, he makes-believe that this is what he was just about to do. Truly the child fortunate in the power to make-believe may live in Elysian fields. He carries with him all the while a magic wand or an Aladdin's lamp which makes the supply equal to his wants and leaves no unsatisfied desire to mar the perfection of his happiness. Difficulties melt away in his fancy and hindrances are transformed into helps. Something is thought to be nothing and nothing may become something.

Rude toys and primitive tools have been remarked to have a deeper fascination for children than the creations of the toyman's shop. For downright good times and rollicking fun the old rag doll and the china doll are more than speaking distance ahead of the other. The facts are that the rag doll is so much more tractable and docile than the Parisian creation. It can be dressed or left undressed. It will sit up or lie down or do anything else that may be required of it. The broomstick is really a better horse than the

boughten rocking-horse. It is so much more manageable. The boy can think so many more things about it, and each one of his thoughts will come true. For the same reason corn-cobs, sand, dirt, leaves, and blocks of wood are his richest treasures. They yield so readily to the magic of his hand; they offer no resistance to anything he may attempt. He can think a cob a fence rail, a bridge timber, a building block, a railroad tie, etc., and it works well. The fascination for clipping papers with scissors, for pounding tacks and nails, for whittling and cutting with a jack-knife, and for digging in the sandy beaches is found in the fact that in each he can think and act out—and act and learn to think—the greatest possible variety of thoughts. Make-believe here appears as the power to think a given thing a variety of different things. The objects that are best suited for play are such plastic things as sand, paper, and blocks of wood. This power of varied thought suggests itself as the crucial moment in the make-believe process. Varied thinking leads to varied acting. In the following incidents it will be seen how strong is the tendency to varied acting and how entrancing is a series of varied movements and changing sensory stimuli: Boys going along the street twist and turn their feet first in and then out, then to one side and then to the other. They walk stiff-legged, on the heel, and then on the toe of the foot. They limp with one foot and then with the other. They punch their eyes to watch the kaleidoscopic changes of color in the field of vision. They punch their fingers into their ears to break up the sounds from their surroundings into varied characters. In repeating the formal expressions from their books, they must introduce some variations; such as, J. H. Dunn becomes J. H. Dunn-to-a-crisp, Bosworth is Bos-worth-a-cent, and Charles Bond is Charles United States Bond. Grimacing and making faces before a mirror are other cases in point. It may be suggested right here that these varied movements are the results or only other aspects of the variability of morphological forms. It would seem that variation in form, variety of movement, and varied thought are essentially one and the same thing. They express the same fundamental law of organic beings.

The climax of make-believe is reached in playing with imaginary companions and in the transformations which the idea of self may pass through. Several cases of imaginary companions have got into literature. One case of an imaginary companion lasting for the better part of childhood has been reported to me, and several cases lasting for months are found in the collection to which I have access. In these a child talks and acts as if another child were present most of the time. Provision is made for this companion at the table and conversations are carried on during playtime. A good deal of men-

tal pain is felt when the companion is not treated seriously or when the provisions for the companion's welfare are not allowed. Playing with the idea of self is closely correlated with this. A child assumes the character of another person and insists upon being recognized in the assumed character. Sometimes it is a dog or other animal. The child finds himself in the presence of this thought of himself, and he begins to think various things or to think himself in various selves. He is now a horse, now a street-car, now a bear, and now locomotive. The personality of the child is thought now in one form and now in another. Here, again, is the same phenomenon of varied thinking which has been spoken of before.

Closely associated with make-believe, and of essentially the same character, is the playing by rule or living up to rules in boys' games. This suggests a stage in social as well as individual development. Many of their games present situations in which a player is tested as to his ability to live up to a rule. A walk about the city the day after Thanksgiving, when an exciting game had been played upon the university campus, revealed a number of groups of boys playing football. In the first four colored boys participated. One placed the ball, another stood at some distance to receive the kick-off, a third kicked, and the fourth acted as referee. The ball was kicked, and immediately the referee declared a penalty, and, taking the ball, he stepped off with some majesty five or ten steps and replaced the ball for another kick-off. In another place a larger number were playing. The ball was passed to a player, who ran with it. The other players took turns at "tackling" the runner. The point of the game was to make a dramatic attempt at tackling, and the runner understood well that it was his part to act so that the tackle should be as spectacularly effective as possible. In still another game the player running with the ball was expected to be tackled, but he played his part by falling in a truly histrionic manner. The point seemed to be all along to carry out in action some thought process which had been aroused by these words. The make-believe appears in the fact that the play is not to be taken seriously, while the adherence to the rule was the crucial point.

The characteristics of make-believe thus revealed seem to be a disposition upon the part of children to think things otherwise than they have been thought before, a tendency to varied thought, and the working out in action processes of thought that have been suggested by actions and words. It will not be difficult to see that these are the characteristics of mind as they reveal themselves in every-day action and thought and signalize themselves in all those moments when requirement is made for invention or originality. Such situations are met by the capacity to think them in some other form than

they have been thought before. Objects become whatever they are conceived to be and, as Professor James suggests, they are nothing else than that. Make-believe is this "mode of conceiving" as it begins to manifest itself in the developing child. Now to think a given object as something else than it has been thought is a suggestion that it may be thought in turn varied things—varied thoughts can be thought about it. The tendency, then, to varied thinking is only an extension of the former process. Thoughts are primarily drawn from actions, and they in turn lead to a realization of themselves in action. The circumstances under which a train of varied thoughts will arise is some novel situation. New objects set up random movements and a fumbling groping which cease with the discovery of some action that will put an end to the impulse to action. The point has often been made that fumbling and movements repeated with variation are the antecedent conditions of all learning. The hurrying and scurrying of a bug which has suddenly been dislodged from his hiding-place ends when he finds a new hiding-place. The playing child finds no further fun in a play when he has learned just how to carry out the rules under which it is to be played. When he has thought every thought about an object that will work well, he turns to something else. Interest is simply a function of thinking varied thoughts.

Make-believe is essentially the method of trial and error as it appears in the realm of ideas. The processes that give us ideas are subject to the law of variation just as instinct activities and morphological forms are. In the presence of new things and such as have no character—plastic materials—this tendency leading to varied thought arises. Known things invite fixed and stereotyped reactions; unknown things—and plastic materials—incite random fumbling and varied thoughts. In the presence of new things, if the individual thinks at all, he thinks thoughts that vary and diverge. Some one of these thoughts or acts may satisfy the impulse. If it be a thought, it will satisfy by leading to an act. The thing and the act which greets it thereby form a functional unit, the thing becoming known through the act—getting meaning—and the act becoming fixed in relation to the thing. This functional unit between an object and an act is an idea. Whenever the object is re-presented, it arouses this idea process which implies the reinstatement of the act that has satisfied the condition presented by the object. The incentive to thinking varied thoughts is an emotional interest. Whenever a train of varied thoughts arise, there is the condition of an emotional interest. The varied thinking is not something else than the emotion; it is rather the emotion itself. The general emotion here is one of curiosity. It is awakened by new things, new

aspects of old things, and plastic materials. Emotional reaction has the character of a random response. During emotion one is subject to the repeated presence of ideas. Emotion thus becomes the atmosphere in which we learn. Make-believe represents this process of learning in the developing mind of the child before the child mind has taken on to any considerable extent the stereotyped character and the definitely recognized emotional reactions which we know as belonging to the adult mind.

The difference between childish make-believe and adult varied thinking lies in the fact that the child thinks in the presence of any object all his various thoughts, and so the associations thus offered bear bizarre appearances and are spoken of as fantastic. The adult thinks his new object first in some class, and then he thinks all his various thoughts of this class until he finds a satisfactory thought. The object drops successively into one class and then into another which is ever subordinate to the one previous. It gets first one meaning and then another; it gets first general or "genus" meaning, and then "species" meaning, and, finally, "variety" meaning.

Upon its evolutionary side make-believe represents the transition in the child life from instinct modes of conduct to ideationally controlled acts. For the child the world of things must be translated into a world of ideas. A satisfactory treatment of the problems of mental evolution must furnish an explanation of how ideas come to substitute themselves for external stimuli. The new-born child can not act otherwise than upon an immediately present stimulus. The source of movement is for him found in the external world. Before adult life is reached the cause of action must be transferred from the external to the internal world—conduct must be put under the control of ideas. Through make-believe the real world of objects transmutes itself into a world of represented objects within which, on the whole, ideas become the cause of actions. In the higher modes of response it is the conceived factor in external situations, and not the particular object, that is the exciting cause of activity. When an object is presented, it is conceived in some manner and acted upon for what it is thought to be. When the action works well, the object becomes just that—it is classified.

Chronologically spontaneous and random activities and imitation have preceded make-believe in their appearance. These are the processes that discover to the child most of his fundamental ideas. By random fumbling and imitation the child gets idea processes started, but until these idea processes can free themselves from the reflex acts through which they have arisen the child is almost as much a slave of his external environment as the instinct-controlled ant—he must wait until the objective situation is presented to get

his idea. The idea processes begin to recur without the external excitation, but they must be tried on to discover whether in arousing activities they work true. In this manner they come to get complete independence of the situations under which they have first arisen. Make-believe is simply trying on ideas to see whether they work true.

Make-believe is not confined entirely to childhood; it survives and persists, somewhat modified, it is true, throughout the whole of life and forms one of the most powerful of social instruments. The things that we can not get are "sour grapes," the riches of this world in which we share not are not worth having, the world itself to the penitent sinner is cast aside as mean and sordid in view of the glories of eternal life upon which he has now set his gaze, the cautious mother in denying the request of her child tells him that the object of his desire is old and big, etc. Remarks made in fun, lies told for a joke, mean things done as tricks, April fool pranks, etc., are not reprehensible. An apology seems to have the power to right a wrong. Violations of constitutional and statutory provisions are treated as new "interpretations." All these are only further instances of the power to think things something else than they have been thought before. A long list of pure illusions under which society has been living all the while might be cited. The sociological writers have by no means overlooked this fact, but they have not seen as clearly the principle that underlies the phenomenon. Tact, diplomacy, finesse, euphemisms, and the arts of dissembling depend for their power upon the ability to think something else while a given fact is before the thinker. Generally speaking, the worse becomes the better cause. Philosophy and Christian Science are one in the fact that both take the attitude that the realities of common sense are often quite unreal, and at times the unrealities of daily life are allowed to have the only reality there is. The first finds the ideal real and the latter rings the changes upon the unreality of pain. In the higher modes of thinking the present manner of conceiving the object or situation bears an analogy to the manner in which it was conceived before. In this respect it differs strikingly from the process of make-believe in children. Still when stone coal was first conceived as fuel, the analogy was not so apparent.

From the standpoint of the creative worker art relies upon the power to think plastic materials, marble, paint, and charcoal, in various ways. In the onlooker a work of art leads to trains of varied thought. The same is true of a work in literature or of a musical composition. To say that a given creation is suggestive means that it will excite a sequence of thoughts with variation. In criticism and interpretation an attempt is made to show that the various streams of thought aroused by the production lead in de-

structive criticism to states of mind of conflicting feeling tones, and in favorable criticism to states with the same feeling tone. Judicial decision attempts to show that a given statute is in or out of harmony with a fixed feeling tone of the people that has found expression in a constitutional provision or in a common law principle.

In invention and discovery this power to think varied thoughts reaches its highest and richest development. The condition under which most inventions are made is a felt want. There must be a state of unrest and excitement. The want prompts various thoughts, each one of which is tried on to discover whether it will work well. To work well is to satisfy the want. Our whole country is at present agitated by the financial situation. The demand is for currency. One person has thought of certificates of indebtedness, another of bond issues, another of asset currency, another of guaranty fund for deposits, another of cashiers' checks, etc. Each one of these thoughts may be tried on to find out how it will work in practise. In the case of some of them a forecast may be made of its mode of operation. That, however, is only another way of trying it on. A city is seeking for pavement to be used upon its streets. There begins this process of varied thinking. In both of these cases many persons are doing the thinking and the variety comes through the fact that different persons think different thoughts. In the case of the scientific man doing inventing, one individual is thinking a succession of thoughts with variations. When a thought has arisen which, when carried into action, satisfies the want that has unsettled the thinker, the process comes to an end.

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JULES DE GAULTIER'S THEORY OF THE SCIENTIFIC PRINCIPLES OF ETHICS

THERE are waves of interest in the different fields of philosophical researches as there are in other domains. Just now, owing undoubtedly to the pressure of social problems, there are indications that we might witness a revival of ethics. Pragmatism, as a matter of fact, is nothing but a strong affirmation of the rights of ethics; the unceasing discussions of the Dürkheim and Levy-Bruhl theories of the *science des mœurs* in France, Fouillée's recently published "*La morale des idées-forces*," are only manifestations of similar tendencies. Ribot, the director of the *Revue philosophique*, was telling not long ago that he had received last fall—and had been obliged to refuse most of them—articles on ethics at the rate of about five a week.

Among the interesting suggestions made of late in the field of ethics, one attracted our attention, and we should like to explain it in a few words.

It was proposed by Jules de Gaultier, who, although rather a new-comer in philosophy, has already written several books, among which we mention: "Le bovarysme" (essai sur le pouvoir d'imagination), "La fiction universelle" (deuxième essai sur le pouvoir d'imaginer), and "La raison et l'idéalisme," all three published by the Société du Mercure de France. Of his articles the more important are: "Une signification nouvelle de l'idée d'évolution" (*Mercure de France*, June 15, 1905), "La dépendance de la morale et l'indépendance des mœurs" (*Revue philosophique*, October, 1907), and he has himself summarized his main theory in a recent article, of November, 1907, in the *Mercure de France*, under the title "La vertu de l'illogique," from which we will specially quote.¹

Personally it is our conviction that Gaultier would have won more recognition if, instead of writing so much, he had concentrated his thought within the space of one concise and vigorous book. Still, as it is, his speculations deserve attention.

All systems of ethics, thinks Gaultier, aim at bringing about universal harmony between man and his social and natural surroundings. But suppose for one moment that this aim had been attained, what would be the use of life? "Universal adaptation is a euphemism meaning non-being (*le non-être*)"; life would be brought to a standstill; the aim of life being suppressed, life would be death. In other words, morality would have realized the undesirable.

Gaultier claims, therefore, the desirability of the *illogique* (the term does not seem to us to be particularly well chosen) as alone giving to life its *raison d'être*.

Now, if man does always endeavor to bring about universal harmony or adaptation—which means death—nature proves, as it would seem, more conscious of our needs, inasmuch as it takes good care, in creating constantly new obstacles for us, that our faculties of adaptation shall always be needed. The changes in the material conditions of life, changes due to cosmic causes, give a chance to man to show that he can conquer difficulties; they form the end of his activity, of life.

Gaultier supports his theories by scientific facts; especially he illustrates from one of the most suggestive books published recently in France, namely, Quinton's "L'eau de mer, milieu organique" (Masson, 1904). In studying the diverse manifestations of life in the sea, Quinton endeavored not only to show facts of transformism

¹ The two articles in the *Revue philosophique* for March and April, 1908, "Indépendance de la morale," were printed after this article had been written.

and evolution, but to explain at the same time, as one might say, the teleological aspects of those changes; and the teleological aspects Gaultier calls ethical aspects:²

"The purpose of life is life, life which critical circumstances, effects of a formidable fatality, threaten to destroy every moment, and which can be kept up only by modifying and perfecting, at the cost of a continuous effort, the system of defense that is opposed to the increasing hostility of the milieu (*l'hostilité croissante du milieu*)" (p. 39).

Gaultier gives two examples of this *hostilité croissante des milieux* which stimulates action (natural or rational) and, in a way, creates life.

"In order to render things simpler, we will consider this hostility of nature only from the one aspect of the cooling of the earth. The first way of reacting is merely physiological: with the most evolved species, particularly with birds, the living cell, according to the theory, has formed for itself an organism in the interior of which and by means of which it has increased its caloric power to such a degree that it compensates the cooling off that has come about since the time when life first appeared on the surface of the globe; in such a fashion that, in this external milieu which had become hostile, it has created for itself a milieu of its own (*un milieu clos immédiat*) similar to that which made it come to life and where now the conditions most favorable for prosperity exist. To this tactic corresponds another: it manifests itself by the improvement of the cerebral organs, which have attained in man their highest point of development, with intelligence considered as a means of adapting an instrument to an end. Man, who can not raise his normal temperature higher than about $37\frac{1}{2}$ degrees, stands in a marked inferiority as compared with birds, which raise theirs as high as 40 or 44 degrees. But he makes up by his power (namely, his industry and his intellectual ability) to modify the external milieu itself. Owing to this intellectual intervention, he knows how to benefit the biological entity whose cause he defends, the elements of the external milieu, and even the hostile forces of the cosmos; he invents fire, clothing, houses, and so forth" (pp. 43-44).

This Gaultier theory is made all the more interesting if we compare it with some of the data furnished in Varigny's fascinating book "*La nature et la vie*" (Paris, Colin, 1906). We beg leave

² It is a question whether Gaultier does not take the terms in too broad and vague a sense; whether he is not betraying Quinton's thought. Surely his terminology is not very precise: *logical*, *ethical*, *scientific* seem to be used pretty much as synonymous; this makes things easy, indeed, and simple; perhaps sometimes too easy and too simple. But this means not to be a critical study.

to translate one or two passages. "If carbonic acid, which represents 3 or 4 parts out of 10,000 of air, should happen one day to diminish by only half of this small proportion, the average temperature would fall 4 or 5 degrees, which would mean in many regions the return of glaciers. . . . Thanks to very accurate calculations, geologists have shown that, in case of a lowering of temperature of 7 degrees, the mountains of the Vosges would be covered with glaciers (Le Blanc), and that, in case of a lowering of temperature of only 4 degrees, the glaciers of Mont-Blanc would come down and cover permanently the plains of Geneva (Ch. Martins). Thus a relatively small lowering of temperature would suffice to cause the whole of France and the remainder of Europe to be covered with ice, and the heat from the sun would not be strong enough to melt the snow accumulated during the winter. In other words, this relatively small lowering of the average temperature of the temperate region would bring about very promptly an offensive return of the glacial period. . . ." Now, "it is possible that variations in the amount of carbonic acid in the atmosphere have taken place. In fact, such variations must have taken place. It is certain, for instance, that after the coal periods (*périodes houillères*), when so much carbonic acid was absorbed for thousands of centuries, in the form of coal, such a diminution of the carbonic acid in the air must have taken place. . . ." "One might say that the amount now on hand is certainly sufficient, since, as a matter of fact, life does not diminish, and neither does the gas. This is true; but our observations are so recent! The proportion of carbonic acid in the air may not have changed in the one hundred years that we have watched it; but what are one hundred years! On the other hand, it is manifest that the proportion of carbonic acid must have been larger in the past. It is certain that every day a considerable amount of this gas is absorbed: owing to the disaggregation of rocks a great many carbonates are formed which are lost for vegetation" (pp. 120-125).

All this reminds us, of course, of Russell Wallace's famous essays on "The Action of Natural Selection on Man." But we must not forget that Russell Wallace wrote with a view to separate sharply between human activity and merely instinctive animal and natural activity, while Gaultier claims, on the contrary, that although man is possessed with another instrument (the mind), the end of human activity is essentially the same as the end of animal unconscious activity from the philosophical standpoint; the latter is just as "moral" as the first. Quinton's researches explain the teleological reasons of life all over the globe; they show, first, why life assumes such and such forms under different circumstances in the lowest

beings (because they endeavor to conquer a hostile milieu); and then, at the same time, they reveal to us the meaning of morality in human life (which is not an adaptation *once for all* to surroundings, physical and social,³ but a conquest of constantly newly arising difficulties). "Thus, in revealing to us the reason of the evolution of organisms, Mr. Quinton has restored to the idea of evolution its sober and precise meaning. . . . In showing us that evolution has an immediate *raison d'être*, in disclosing its end, which is to allow the cell to struggle successfully among circumstances of an ever-increasing hostility, he offers us a conception of life which allows us to share those efforts for life, and to assign to our own human activity a definite task and an objective value. . . . This gives to ethics an aim which, for the first time [?] is not imaginary; and this allows us to classify the moral phenomenon (*le fait moral*) among the objects that are within reach of science" (pp. 40-41).

The idea of opposition and hostility fostering life, of course, can not be said either to be new altogether. Gaultier himself mentions Hegel as a predecessor, and more recently Tarde and Paulhan; and he claims for himself the honor of having developed it more fully in a system which he calls (from Flaubert's famous novel) *le bovarysme*.

As for us, the theory reminds us even more of Schopenhauer and Hartmann than, for example, of Hegel. Is this organic effort to conquer difficulties of life, suggested by Quinton and Gaultier, very different from the "will to be" or from the "unconscious" which inspire in us the desire to live? Gaultier only stands more on the psychological and human ground when he explains his system. While Schopenhauer and Hartmann consider simply the will to live an inexplicable metaphysical principle, Gaultier *explains* it for us as an action that, in its manifestations at least, can be understood; he says not only that organisms want to live, but he accounts, intellectually, why it is so; he says also, in regard to man, that man does not want simply to live, but that his *desire to live*, means, when analyzed, *desire to conquer*.

This would account, perhaps, for the fact that, while Schopenhauer and Hartmann considered life as an evil in itself, Gaultier does not betray any such attitude. Indeed, there is an interesting *rapprochement* that can be made between Gaultier's theory and that

³ We remark that Gaultier does not take up the real moral question in humanity in this article; he speaks only of our struggle against material difficulties, but not of the struggle resulting from social intercourse, from relations of man to man or to society; but, of course, the theory can be extended easily, namely, so that the always more complex organization of social life constantly brings about more difficult problems of adaptation in society. We are kept busy in overcoming them.

of Christian Providence: namely, that of nature taking care that life be made a test of man's energy and abilities, of his moral value, and thus of nature working, if not for man's happiness, perhaps, at least, for moral perfection.

On the other hand, the theory as explained by Gaultier is not entirely rounded up—if we may so speak. It will be remembered that he opposes his conception of life, his morality, to that of the systems of ethics which hold that perfect harmony is the end of human efforts. But one does not see how, in accepting the theory here described, the *morality* of the fight is higher than the morality of the perfect harmony scorned by our author. Either he must complete his own theory by admitting a God who compels us to conquer and work and suffer—thus completing his edifice by a metaphysical theory; or he must prove that in this conquering and working and suffering there is some other reason which, to us, makes life worth living. In the first case we come back to the old morality of religious authority. In the second case we face this new alternative: (a) If, as a conscious being, I consider the fighting as undesirable, and life as a suffering, there is no reason (God being withdrawn) why I should not kill myself—thus, like Schopenhauer and Hartmann, recommend the bringing about of the end of the human race. (b) If I do not choose to give up my life, it must be shown that in this work, suffering, etc., there is enjoyment. In other words: Gaultier says that the aim of life would be done away with if universal harmony is brought about; but then he ignores altogether the new problem that stands before us, if we accept his views, namely: Is there any ultimate *raison d'être* to this life which means failure and labor and suffering? Is it worth while that I should continue the fight? If so, *Why*? Or is the labor, failure, and suffering desirable for me personally? If so, *How*?

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DISCUSSION

THE PRAGMATIC NOTION OF $\mathfrak{A}\eta$

IN Vol. V., No. 4, of this JOURNAL, Mr. A. R. Gifford makes some interesting remarks on the pragmatic notion of $\mathfrak{A}\eta$. As his contentions are aimed, if they work, to commit pragmatists to their pet *bête noire*, the absolute, it may be not uninteresting to discover how far they succeed.

I take Mr. Gifford's important propositions to be as follows:

I. "The concept $\mathfrak{A}\eta$ when applied as a limitative concept apparently leads out into an infinite regress, for at whatever level

pause be made, the pure $\bar{\lambda}\eta$ is still to seek. An ever-receding hypothetical basis of determinate experience, which always remains *beyond* experience, can not be harmonized with the proposition 'reality is experience' (p. 102). "Indeed, an indeterminate but determinable $\bar{\lambda}\eta$ is obviously a contradiction in terms" (p. 103).

II. "The concept $\bar{\lambda}\eta$ seems capable of intelligible use in one sense only, viz., that any specific determinate item of experience is potentially another item which is yet unrealized. That it may become such other item is conditioned upon its possession of certain definite characteristics. No indeterminate item could *be* at all, and so *a fortiori* could not become the basis of experience" (pp. 103, 104).

III. "In spite of pragmatic contentions to the contrary, we must, therefore, not merely acknowledge a *system* of things constituted by the inner and essential relations of the particular items of experience . . . so long as we assent that reality is experience, for just so long must we further assent that no aspect of experience—actual or possible—contains or reveals a bare $\bar{\lambda}\eta$, a sheer potentiality. For within experience form and content imply one another. To admit this is to admit that in some sort the matter of experience has a psychical basis. There can be no non-psychical $\bar{\lambda}\eta$ " (p. 104).

I shall consider these contentions in turn:

I

The issue raised is really the issue between monism and pluralism. Mr. Gifford seems to assume (1) that the infinite regress is objectionable, and (2) that the phrase "reality is experience" is interpreted by the pragmatist in the same way as by Mr. Gifford. The second of these assumptions is *a priori* false, since Mr. Gifford appears to be a non-pragmatist, but, one would gather, one of the thirteen varieties of absolutist or monist. Pragmatists, on the other hand, are avowed pluralists. It would seem, therefore, that for Mr. Gifford the proposition "reality is experience" is a mere tautology; that its two terms exhaust each other, that nothing *new* is learned by means of their juxtaposition. If that is so, if Mr. Gifford agrees with Bradley that predication is either tautology or contradiction, Mr. Gifford assumes too much in assuming the pragmatist also agrees with Bradley. For the pragmatist and pluralist predication has meaning! "Reality is experience" is a synthetic proposition by means of which some new knowledge is gained of reality. If the proposition works it means that experience is *true of* reality. It does not mean that experience is identical with reality, any more than "the apple is red" means that apple and red are identical. The intent is that experience stands in a definite relation to reality; a relation that the pragmatist denotes by the word "works." So

again, when Professor James writes that some relations "are fixed and essential because they are grounded on the inner nature of their terms," it is to be remembered that Professor James writes as *pluralist*. To interpret *grounded* as meaning *constituted by* is to beg the question, which Mr. Gifford both explicitly and implicitly does. Professor James, as pluralist, can not be interpreted as Mr. Gifford interprets him; he must be held to mean merely, that given two terms, say, *red* and *green*, there is a relation between them, say, *difference*, which invariably works as a predicate of either with regard to the other. Difference, for the pluralist, is an entity, immediately given in experience. It can be thought of intelligently, quite without terms, by any one except such whose philosophy is based on denying this. Why it "implies that mathematics and logic are not through and through pragmatic," or where pragmatism denies them "an objective . . . aspect," is very difficult to see. Mr. Gifford insinuates the word "absolute" as an attribute also of mathematics and of logic. What he means by "absolute" is not at all clear. If he means totally irrelevant to any human purpose, he is obviously mistaken; if he means "independent" of human usage, I do not understand how he can talk about absolute matters at all. To be "through and through pragmatic" is to be thoroughly satisfactory instruments for the purposes of life. There is, perhaps, nothing that has been so "through and through pragmatic" as logic and mathematics. That is why they have survived Hegelism and its absolute, in which *yes* and *no* were the same thing. It is a mere *non sequitur* to argue that the acknowledgment of fact, and eternal relations, constrains the further admission that the so-called "that" aspect of cognition is vastly more than a bare "that." This can follow only on the doctrine that relations are *constituted by* their terms, are immanent in them and unknowable without them. It *can not* follow on the pragmatic account of relations.

Nor, in that account, can it be argued that the infinite regress involved in the attempt to get at $\mathfrak{A}\eta$ is objectionable. For all that the infinite regress proves is that what is not $\mathfrak{A}\eta$ is numerically different from what is. $\mathfrak{A}\eta$ may be inferred just as other minds are inferred. The same infinite regress is involved. One would gather from Mr. Gifford's objection to $\mathfrak{A}\eta$ that he is a solipsist. It is not an intelligible use of the infinite regress to argue that a *determinable* but *indeterminate* $\mathfrak{A}\eta$ is contradictory. There seems, moreover, a confusion in Mr. Gifford's mind between *indeterminate* and *indeterminable*. *Determinate* and *indeterminate* are contradictory; so are *determinable* and *indeterminable*. But Mr. Gifford will, I suspect, be hard put to it to prove either an implicit or an explicit contradiction between *indeterminate* and *determinable*. And, there-

fore, the question may *not* be raised: by virtue of what characteristics is $\psi\lambda\eta$ capable of determination? Or, if it is raised, the answer is given: by virtue of the characteristic of being capable of determination. And this answer is *no* determination of $\psi\lambda\eta$; it is a *denotation*. I hope that Mr. Gifford, absorbed in the fiction that a thing must *be* something else before it can *become* that something else, will see that *becoming* looks *forward* and not *backward*; that it is an act, complete and single, not a series of states. He will then, perhaps, agree that determination can *happen* to the indeterminate, by pure chance, and by no immanent virtue. But it has long been a crime to suppose that one world was a multiverse, that it was growing, that change was *no* illusion. Even in static accounts of the "universe," however, there is such a thing as a variable, the consideration of which may be recommended to the monists. $\psi\lambda\eta$ is the fundamental variable, about, before, around, within us. It has no value of its own except it is involved in every value or form. Mr. Gifford may call it spirit if he likes, or matter, or roly-poly. The name doesn't matter. The indeterminateness does.

II

It is, therefore, absolutely unnecessary and gratuitous to assume that *A* in order to become *B* is *already* that *B* "unrealized." This is an assumption equivalent to "nothing is everything, 'unrealized.'" Mr. Gifford offers no proof of his assumption—though I suspect that behind it is the notion that relations are inside their terms and constituted by them. It involves as inevitable consequences a rigid monism, the falsity of all knowledge, the identity of anything with everything, and all the other contradictions of absolutism. As it stands in Mr. Gifford's paper, it is to be met with a flat denial, merely; but it is already sufficiently refuted in the pluralistic definition of "relation." An apple does not become red because it contains red inside of it, "unrealized," or because it is an apple. It becomes red because red becomes one of its predicates. It is as much apple without the red as with it. If it is an *item* it is not indeterminate; and to speak of an indeterminate item is to impute to Dr. Schiller a meaning that can not be found in any of his utterances, and to beg the question. *Being* and *becoming* are not items; they are certainly indeterminate. Beings are determinations of both; but *a fortiori* they can be and are the basis of beings.

III

If Mr. Gifford had really understood "pragmatic contentions to the contrary," he would *not* have found himself compelled "to

acknowledge a *system* of things" defined as he defines them. Nor would he have to admit that the dichotomy Dr. Schiller suggests is futile. He would have seen that it is very necessary if life is not to be called a monistic illusion. He would have seen that things may be together—with and different—from each other; that they may be as real as the experience of them, and the experience as they. What Mr. Gifford means by that very ambiguous word *system* is most obscure. Does he mean a whole, a class, an aggregate, or a collection? The first is certainly impossible, despite monistic arguments to the contrary; the other kinds of "unities" are what pragmatism has insisted on as against the "block universe." We may, therefore, assent that reality is experience and yet insist that many aspects of experience imply "a bare $\psi\lambda\eta$, a sheer potentiality," just as other aspects imply minds other than our own. That "within experience form and content imply each other" is an *ignoratio*, and is, in any event, not proved. As well say that the marble implies the idea of the statue or the chisel which embodies the idea. The finished statue does imply *both* idea and content. But it is mere misunderstanding to accuse the pragmatist of believing in a *finished* world; nor does the *finished* statue at all account for the union of form and content. That they are not the same is obvious to any one but a monist. Pragmatism aims to show *how* they came together. But, admitting for the moment that form and content do imply *one* another, can it be argued hence that there can be no "non-psychical $\psi\lambda\eta$ "? Only on the presuppositions of the homeopathic philosophy, which destroys all differences in the one arch-hooligan, the absolute. For on those presuppositions alone is the divine identical with the indeterminate.

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REVIEWS AND ABSTRACTS OF LITERATURE

The Principles of Empirical or Inductive Logic. JOHN VENN. Second Edition. London: Macmillan & Co. 1907. Pp. 604.

It appears to me that Dr. Venn's book is peculiarly opportune at the present time; and deserves more attention than is apt to be accorded to a second edition, especially when such does not represent a work wholly recast and rewritten. In his modest introduction to the first edition, the author does not claim great originality in his treatment of his subject, and states that his main guiding influence was that of Mill, who dominated the thought of intelligent students to an extraordinary degree a generation ago. The preface to the second edition is, if possible, more modest, and leaves the reader to find out for himself the value of the book.

Dr. Venn's debt to Mill is, of course, evident to any one familiar with the famous "System of Logic," and I do not propose, in the present notice, to enter into a detailed criticism of his successive chapters on terms, propositions, hypothetical and disjunctive judgments, definition, division, induction, the syllogism, the inductive methods, and the rest. There is not one of these chapters which may not very profitably be read, whether by the novice or by the trained logician of any school, for though Dr. Venn has kept the frame or outline of a logic with which we have all become familiar, he has treated each subject with an independence quite his own; and, it is important to remark, an independence born not of a mere love of independence, but which has its root in a broad knowledge of the sciences, a conscientious desire to tell the exact truth about things, and a wholesome fear of the baleful influences of passion and prejudice. So striking is this characteristic that I wish to place it in the foreground. It is seldom that one meets with an author so willing to speak with hesitation in the presence of insufficient evidence, so little tempted to urge upon his readers pet theories of his own, so ready to stop talking where his knowledge ceases.

I have said that the appearance of the book is peculiarly opportune, and have been impelled to say this, not chiefly because of the author's contributions to especial departments of logical doctrine, such as the theory of hypothetical and disjunctive propositions, or that of the relation of the syllogism to induction. I have been impelled to say it because of the general standpoint taken and the temper of mind exhibited in the book. We are fallen, I think, on evil times; there has been in the past few years a distinct exacerbation of the tendency to irresponsible and rhetorical writing. Once we were taught that truth was a something to be revered and obeyed; now we are given to understand in certain quarters that she is a trollop that we may order about with a good deal of freedom. Many of us believe that this view of things will, in time, bring its own cure, and that subjective and objective will again be held worthy of clear distinction. Meanwhile, those who still believe in science are rendered uneasy by the prevalence of what seems to them a confusion, unnecessary in itself, and which may easily serve as a basis to unwholesome superstitions. Such will find in Dr. Venn's volume a statement, always cautious and moderate, but which does not discredit science as a whole nor seem to lend authority to petulant exaggerations of the ignorance of man. It is a good thing for the man who is in danger of falling into the error that we make truth rather than find it, to come upon such a sentence as the following: "Nature, as the ground and foundation of our inductions, shows no distinction between the past and the future. We must regard it as stretching alike in both directions, with supreme indifference both to our feeble powers of studying it and to our personal interests in contemplating it. Those powers and those interests make the distinction between the past and the future one of paramount importance to us men as observers and agents, but they can not transfer this importance into the objective connection of the phenomena themselves" (p. 124).

Dr. Venn does not regard empirical logic as an ultimate science, and in his first chapter he lays down certain postulates which it should accept as its foundations. The first of these is the duality accepted in common sense and in science—the duality consisting of the world of external objects, on the one hand, and of the observer, on the other: “The existence of an external world, in fact, is just one of those questions which a man must be left to settle with his metaphysician, but which he has no reason to introduce in the case of any quarrel between himself and his logician. He can not utter any of the precise statements of logic, or any of the looser ones of common life: he can not claim to be right upon any subject of discussion, he can not be shown to be wrong: he can not even ask a question which goes outside his own private feelings: without admitting all that we require for our present purposes” (p. 3). In other words, both in common life and science we find that we are dealing with objects—not merely with our sensations and feelings, but with objects—and are making inferences concerning them. Empirical logic is concerned with our method of procedure. It may describe it, and bring us to a clearer knowledge of its significance; it may not enunciate propositions in contradiction with the actual edifice of our knowledge.

I feel like going a little farther than Dr. Venn, and maintaining that the metaphysician has no more right to do this than the logician. What a man may be left to settle with his metaphysician is not, I take it, *whether* there is an external world, but *what* the external world is. That is to say, the metaphysician may carry a little farther the analysis of our knowledge, and try to make clear what, for certain purposes, was rather uncritically assumed. And I feel sure that, did Dr. Venn care to be a metaphysician, he would hesitate long before he would allow any train of metaphysical reasoning to conduct him to what appears to be a frank repudiation of the actual knowledge of the world possessed by mankind. Mill was not so careful; he accepted a dualism, too; but he has said things which certainly lay him open to the charge of inconsistency.

Other postulates brought forward by Dr. Venn are: the objective uniformity of the external world, independent of our attitude of knowledge or ignorance towards it; the essential sameness of the world to all observers; the fact that the logician must leave the external world undisturbed, if inferential processes are to be valid; the acceptance of the distinction between truth and falsity; and the assumption that words must have some definite meaning in the minds of all who use them, and that we have a right to change the form of expression so long as the meaning is not interfered with.

It is clear to one reading this list that Dr. Venn has limited carefully the province of the inductive logic. One who chose to write a logic broader in its scope would certainly regard these postulates as worthy of extended discussion. But, for the purpose in hand, it seems justifiable to assume them and merely to define their significance. It will be observed that they are all tacitly accepted in the sciences generally, and that their repudiation would result in hopeless confusion. And this

brings me back to the thought upon which I have dwelt above, namely, that Dr. Venn has written his work fully alive to the responsibilities which the indubitable existence of a considerable body of knowledge, in part satisfactory, and in part held with reservations, lays upon the shoulders of the logician and the philosopher. Men have had a long experience of the world; in some directions human knowledge has been pretty well systematized; the solitary thinker should think more than twice before he decides to treat all this lightly. If his conclusions come into collision with what it seems reasonable to accept as the basis of the inductive logic, he should distrust them; and if his conclusions seem to be very startling and interesting, he should distrust them all the more.

I have left myself little space to dwell upon the special topics treated in Dr. Venn's book. I have found of great interest: his discussion of the laws of causation, and more particularly his treatment of coexistences as having much the same significance for inference as sequences; his chapters on definition and division, which keep very clearly in view the practical aims of scientific investigation; his emphasis upon the misleading character of the account usually offered us, in works on logic, touching the process of inductive inference—the false suggestion of clearly recognizable causes and effects represented by capital letters and letters not capitals—and his insistence upon the necessity of a stroke of creative genius upon the part of the discoverer, that he may detect the presence of the property to be generalized; his modified acceptance of Mill's view of the relation of the syllogism to induction.

Everywhere the discussion is cautious; sometimes it is hesitating, as though the author were reluctant to commit himself. In his chapter "On Certain Foundations of Mathematics," the question of the origin and nature of the certainty we feel about the axioms and conclusions of geometrical reasoning is referred to, and we find in a subjoined note the following words: "at the risk of destroying any trust the philosophical reader may entertain about my right to touch these questions at all, I must frankly admit that I can not claim to have arrived at any confident judgment upon the matter. Fortunately, as above remarked, such a final judgment is not necessary for present logical purposes" (p. 474).

The chapter just referred to I have found one of the most interesting, and, yet, in certain respects one of the least satisfactory in the book. Dr. Venn is not so much concerned with the origin of geometrical axioms as with "the nature of the geometrical subject-matter," namely, the surfaces, lines, and points with which we have to deal. He is, of course, as well equipped as any one to deal with mathematical concepts as such, and he is a skilled logician. But I am inclined to think that logic, as he has chosen to set its limits in the present volume, must find the question of the ultimate nature of mathematical concepts one that lies beyond its province. Have we not seen that the empirical logic accepts the duality of external world and observing mind, leaving to the metaphysician the further discussion of the matter? And if we will enter into discussions touching the nature of space and time and their demarcations, are we not

on metaphysical ground? For my part, I do not believe that we can treat of the ideal surface, line, and point, as these exist for the mathematician, and distinguish them from surfaces, lines, and points, as directly revealed in sense experiences, without entering into questions touching the subjective and objective, appearance and reality, which are unequivocally metaphysical questions. The chapter on "Psychical Standards and Units" carries one, I think, into much the same field.

However, these are matters on which we should all decide to hold our opinions, if we have opinions, tentatively. Dr. Venn has set us an example of candor and modesty which we would do well to follow.

As for the style of the book, it is clear and simple, offering no unnecessary difficulties to the reader; the learning of the author will be appreciated by the discriminating, but unnecessary references have been carefully avoided, and there is no show of learning at all. The temper of the work reminds one of the writings of Henry Sidgwick; but, the present volume, while retaining all the patient fair-mindedness of the "Methods of Ethics," is much more readable. In closing, I may say that Dr. Venn made his reputation long ago, and the critic of the present day can do little either to make or to mar it. But the present-day critic may well regard it as a serious duty to urge upon the attention of the rising generation a work of such solid worth, and one which so admirably represents the scientific spirit at its best.

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Leçons élémentaires de psychologie et de philosophie. A. REY. Paris: Édouard Cornély & Co. 1908. Pp. viii + 1042.

A most comprehensive outline of psychology and philosophy is given by Professor Rey. We are usually inclined to look with suspicion upon a volume which includes so many subjects as does this one. But upon reading the book through one sees that the different fields have been well covered. The volume contains the following subjects: psychology (pp. 1-459), esthetics (pp. 461-485), logic (pp. 487-683), ethics (pp. 685-929), and metaphysics (pp. 931-1009). The treatment of these subjects is extremely systematic and modern. In fact, a lecturer or instructor in such subjects as psychology, logic, ethics, or metaphysics could easily do himself credit by following the outline of topics and the treatment given.

Psychology is well handled. A thoroughly reliable and modern view is presented. Such aspects as the motor side of ideal processes, the biological function of consciousness, and, in the case of attention and memory, the pathology of the subject, are given. As the portion devoted to psychology gives such facts as may be found in the modern text-book, an abstract of the contents is not necessary. To indicate the general character of the treatment, however, I shall give the topics followed in the discussion of attention. The author first defines attention and then gives the various kinds, as spontaneous and voluntary. Under the topic "Psychological Aspects" he discusses concentration, adaptation, fluctuation,

and interest. Under the topic "Physiological Aspects" he treats of changes in the circulation of the blood, respiratory changes, motor phenomena, and inhibition. The genesis of the different forms of attention is then taken up and the theories of attention are briefly considered. The function of attention and discrimination is briefly presented. Other topics are treated in a similar manner. The section of the book on psychology will be found most useful to student and instructor alike. In fact, it is well worth a translation into English.

The esthetics is much briefer than the other sections of the book. The author here deals in a very general way with such topics as the historical conceptions of art, the objective or sociological point of view, the subjective or individual point of view, science and art, style, art and ethics, and art and utility.

Like the psychology, the logic is modern and far ahead of the elementary books in English. In addition to the so-called Aristotelian or formal logic the author gives an account of the classification of the sciences, method in mathematics, method in the natural sciences, and method in the psychological and sociological sciences. These divisions alone are extremely suggestive. While advanced works like that of Ormond deal with such topics, the usual text-book in English does not touch upon them. The treatment of method in mathematics is very good. Among other topics the author discusses the general method in mathematics, the character of mathematical definition, the mechanism of proof, the forms of demonstration, and the origin of mathematical notions.

The ethics discusses the usual topics, as the systems of ethics, obligation, sanction, pleasure, sentiment, and reason, duty *vs.* pleasure as the end of life, etc. The social side of ethics is then taken up. The family and the state receive some consideration. The section on ethics concludes with a presentation of the basic rights of the individual.

The metaphysics gives a survey of the theories which seek to define reality, being, substance, and the absolute. Materialism, spiritualism, idealism, apriorism, empiricism, etc., are thus discussed. In connection with the individual, freedom and determinism are considered. The section closes with a presentation of the theories of matter, hylozoism, idealism, materialism, parallelism, etc.

For the student the entire volume is most serviceable. The work is more than a compend. It is a careful presentation of the most recent facts in the various subjects, and is extremely useful because of the orderly and systematic treatment given.

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Quelque mots sur la définition de l'hystérie. ED. CLAPARÈDE. *Archives de psychologie*, October, 1907. Pp. 168-193.

So numerous and so diverse are the hypotheses which have lately been offered in explanation of hysterical phenomena, that Claparède's keen and logical discussion of the question on the broad lines of biological development is a most timely and valuable contribution to the literature.

With his usual clear insight, he first points out several causes of the existing diversity of opinion; next enumerates the points which a definition, to be satisfactory, must explain; then shows in what respects certain definitions fail to meet these requirements; and finally, by the aid of the biological method, which he has so often successfully applied to other phenomena, builds up a conception of hysteria on the basis of evolutionary and developmental changes.

The many and varied conceptions of hysteria are, he thinks, the natural results of the individual view-points and therapeutic methods of the men who framed them. In an investigation of the same symptom complex the physiologist will deem certain features of primary importance which to the anatomist or psychologist will seem of little account, so entirely will their interest be centered on totally different phenomena. Furthermore, various men have succeeded in removing hysterical symptoms by the use of quite different methods—hypnosis, suggestion in the waking state, rational psycho-therapy, the freeing of a submerged emotional memory, and physical treatment have proven equally effective—and it is but natural that each physician should base his opinion of the nature of the disease upon the theory underlying his own successful therapeutic efforts.

He discusses at some length the conditions of a satisfactory definition and believes that one can never be reached by any purely clinical method of investigation, but that a knowledge of all the symptoms must be supplemented by a further knowledge of their causes and the order of their development.

The much criticized definition of Babinski he finds quite inadequate. This holds that hysteria is a psychic state manifesting itself by certain primary and secondary characters. The primary characters can be reproduced by suggestion in certain subjects, and can be eliminated by persuasion. Claparède objects that, taken literally, the definition tells nothing of the nature of hysteria, as the cause and nature of the induced characters may be quite different from the cause and nature of the hysterical symptoms which they duplicate. Suggestion is not shown to have any causal relation with the hysterical phenomena. The definition is, therefore, merely an empirical sign founded on the comparison of certain hysterical symptoms with artificially induced functional conditions, and the application of the theory to other symptoms than those studied is not justifiable.

Although the definition does not state it, Claparède quotes Babinski as asserting elsewhere his belief that the primary symptoms of hysteria are the result of suggestion or auto-suggestion. This would be a more satisfactory definition, but would still leave the phenomenon of suggestion unexplained.

Before entering upon the discussion of suggestion, it seems necessary to understand that, apart from any theories as to its nature, the term suggestion designates quite different phenomena as used by Babinski, Janet, and Claparède. Babinski uses it in a very limited sense to sig-

nify the attempt to induce an individual to accept a manifestly unreasonable idea. Janet applies it to ideas which develop automatically outside the will and personal perception of the subject; if induced from without, they are the product of suggestion, if evolved by the subject, of auto-suggestion. Babinski and Janet thus make a sharp distinction between suggestion and persuasion. Claparède, on the other hand, looks upon persuasion as a form of suggestion and considers the latter a normal function of the mind, a sort of instinct or mental reflex, which is for the mind what the mimetic movements are for the body. Its function is to assist the individual to conform to the conditions of his environment.

He advances three hypotheses in explanation of hypersuggestibility. The first attributes it to a cerebro-mental trouble which constitutes the fundamental characteristic of hysteria; the second considers it an exaggerated reaction—a partial effect of a general disposition toward an abnormal exaggeration of certain reactions, which disposition constitutes hysteria; the third considers it the result of the narrowing of the personality due to the inhibition of certain mental complexes or to their non-assimilation with the ego. The second point of view is Claparède's own, and has the advantage of harmonizing with general evolutionary and developmental theories. He thinks that the phenomenon of suggestion is not the fundamental character of hysteria, and that, therefore, all hysterical symptoms can not be explained by reference to it. For example, he thinks it manifestly impossible that *astasia-abasia* can be the result of auto-suggestion. This opinion, of course, follows his conception of suggestion, which requires that for an auto-suggestion a preconceived idea of the resulting condition exist in the mind of the subject. If one thinks of suggestion in the sense of Janet's definition, this objection at once disappears, for the term then refers to the development of the idea apart from the personal consciousness.

Furthermore, suggestion is unsatisfactory as an explanation, because it takes no account of the pathogenic evolution of hysteria. Breuer and Freud were the first to point out the importance of noting the genetic stages of the disease. They hold that a primitive inversion and an abnormal excitability of the nervous system result in the cutting off from consciousness of painful impressions and memories, which cutting off, in its turn, causes various functional manifestations. They compare hysteria to an edifice of many stories, each story presenting individual characteristics.

Claparède attempts, by the aid of biological concepts and methods, to assign the various symptoms to the level at which they genetically belong. He holds that the biological standpoint is useful in three directions: it points out which reactions are primary and which contingent, it shows the common origin of diverse symptoms, and reveals abnormalities of reaction.

Biology teaches us that all organisms respond to adverse environmental conditions by defensive reactions. An analytical study of hystericals shows a marked resistance to the recall of painful memories.

Biologically considered, such resistance is nothing more than a defensive reaction against a painful experience. Accompanying this defensive reaction directed toward certain memories, we frequently find paralyses and anesthetics; these are determined in kind by the inhibited ideas, which act through some established associative connection. With normal individuals, a purely mental experience often produces a feeling of disgust and actual contraction of the pharynx; the physical symptoms of hysteria are analogous phenomena, but they are much exaggerated and totally unimpeded. Hysterical swellings, blisters, and kindred phenomena may also be included in the class of defensive reactions if they be regarded as reproductions, changed and rudimentary, of course, of a type of reaction of great importance to the organism at some remote period of phylogenetic development.

Suggestibility is also brought within the group of defensive reactions. It is counted a reaction against one's personal peculiarities, which would, if allowed free development, tend to isolate the individual from the social group. Hypersuggestibility is, accordingly, but an exaggeration of this quite normal reaction of defense.

Thus the basis of the principal physical stigmata and accidents, as well as of the hypersuggestibility of hysteria, is found to be a tendency toward the exaggeration of certain defensive reactions. The nervous system of hystericals is characterized by a tendency to reversion, to atavism, which facilitates the action of reflexes. This tendency toward reversion, toward retention of primitive types of reaction, is usually found in individuals of infantile mentality. Biologically woman represents a less evolved type than man. This is evidenced by the persistence of the play instinct—which is a developmental phenomenon ceasing at maturity—throughout the life of woman. This infantilism renders her more susceptible to reversion than man, and accounts for the greater frequency of hysteria among women.

This preponderance, however, has not been positively established. Charcot states that the statistical records of the patients attending his clinic have shown more cases of hysteria in men than in women. He further expresses the belief that the disease is more frequent among the men of the lower, and among the women of the higher, classes of society. Souges also states that in his hospital experience hysteria is twice as frequent among men as among women. The idea that her infantilism renders woman more susceptible to reversion is opposed to the opinion widely held that we find a greater mobility of type among men, a larger proportion of individuals diverging from the average, in the direction both of genius and of imbecility.

The question of the distribution of the disease between the sexes, however, is not essential to the development of the main thesis. As stated above, this aims to establish as fundamental the exaggeration of defensive reactions against painful impressions; this results in a cutting off of certain ideas and, therefore, in a narrowing of the field of consciousness. This inhibition also results in a lessened general dynamic force, and

hence in a diminished power of control, which permits a more prompt response to stimulation, or, in other words, a heightened suggestibility. Having thus accounted for the condition of suggestibility, we can logically place as its result certain symptoms of the hysterical complex. These symptoms are, however, far from being the fundamental ones.

To sum up this biological concept of hysteria—the fundamental feature is a constitutional or acquired state characterized by a tendency to exaggeration or recuperation of instinctive reactions of defense. This tendency results in a second group of symptoms—an inhibition of painful impressions accompanied by amnesias, paralyses, and anesthetics when partial and by syncope when complete, vomiting, convulsions, cutaneous and vaso-motor troubles, fever and hypersuggestibility. These secondary characteristics result in a narrowing of the field of consciousness and sometimes in a doubling of the personality, also in such associated troubles as conversion, transference, etc. This division of the personality, by lessening the general dynamic power, results in turn in an increased suggestibility, which makes possible the development of an unlimited number of symptoms. Thus the suggested symptoms, instead of holding first rank, are only the final phase of a developmental group passing through at least five evolutionary stages.

This classification is not offered as a final solution of the problem. It is intended merely to reveal its complexity, to point out the differences in origin of various symptoms, and to emphasize the danger and futility of trying to explain such a varied group of phenomena by any one principle such as suggestion or auto-suggestion, or, in fact, of attempting any definition before making a thorough investigation of the nature of the phenomena involved.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. March, 1908. *Sur l'ensemble de la psychologie linguistique* (pp. 225-255): R. DE LA GRASSERIE. — A definition of linguistic psychology and a description of its field, as psychology of syllables, of words, and of syntax. *L'indépendance de la morale* (pp. 256-273): P. GAULTIER. — Ethical systems based on science lack the power of ideals and are cut off from "conscience," therefore they are failures, and objective science has come to deny the possibility of ethics. *Deux types d'immoralisme* (pp. 274-285): G. PALANTE. — Immoralism treats morality either as nearly impotent or as effective, but a tyranny to be revolted from. *Revue générale: La psychosociologie juridique* (pp. 286-292): G.-L. DUPRAT. *Analyses et comptes rendus: L'année philosophique*; JULES DELVAILLE. G. Cald, *Il problema della libertà nel pensiero contemporaneo*; J. PÉRÈS. O. Lodge, *La vie et la matière*; ABEL REY. K.

Neisser, *Ptolemaus oder Kopernikus?* ABEL REY. A. Binet, *L'année psychologique* (XIII.): H. PIÉRON. Brasseur, *La psychologie de la force*: ABEL REY. Pick, *Studien zur Hirnpathologie und Psychologie*: H. DAUDIN. Rogues de Fursac, *Un mouvement mystique contemporain*: H. DELACROIX. Höffding, *Philosophes contemporains*. Alexander, *A Short History of Philosophy*: F. PILLON. Pringle Pattison, *The Philosophical Radicals and other Essays*: M. SOLOVINE. Görland, *Der Gottesbegriff bei Leibniz*: A. PENJON. *Revue des périodiques étrangers*.

REVUE PHILOSOPHIQUE. April, 1908. *La morale des idées-forces* (pp. 337-366): D. PARODI. - A critical study of "La morale des idées-forces," by Alfred Fouillée. *Pragmatisme et intellectualisme* (pp. 367-388): A. CHIDE. - Pragmatism is a rebirth of nominalism, and its motif is the striving for clarity, but in order to become profound it is reconverted to intellectualism in spite of itself. *L'indépendance de la morale (suite et fin)* (pp. 389-409): P. GAULTIER. - The scientific denial of the possibility of ethics comes from a too narrow concept of science, but a broader concept, admitting psychology, furnishes an adequate basis for ethics. *Revue générale: La psychologie infantile en 1907* (pp. 410-425): MARIE E.-B. LEROY. *Observations et expériences: Sur le temps nécessaire pour nommer les nombres* (pp. 426-431): B. BOURDON. *Analyses et comptes rendus*: E. Becher, *Philosophische Voraussetzungen der exakten Naturwissenschaften*: ABEL REY. Chatterton Hill, *Heredity and Selection in Sociology*: G.-L. DUPRAT. Durkheim, *L'année sociologique* (10th year): G. BELOT. Marchese de Luna, *Il suicidio nel diritto e nella vita sociale*: G.-L. DUPRAT. Troilo, *La filosofia di Giordano Bruno*: J. PÉREZ. *Revue des périodiques étrangers*.

Apulei Opera. Vol. III: Apulei Platonici Madaurensis de Philosophia Libri. Edited by Paulus Thomas. Leipzig: B. G. Teubner. 1908. Pp. xviii + 197. 4 M.

Gilbert, Otto. *Die meteorologischen Theorien des griechischen Altertums.* Leipzig: B. G. Teubner. 1907. Pp. vi + 746. 20 M.

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Stumpf, Carl. *Die Wiedergeburt der Philosophie.* Address delivered by the author on his installation as rector of the University of Berlin, October 15, 1907. Leipzig: J. A. Barth. 1908. Pp. 38. 1 M.

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NOTES AND NEWS

THE following, from the *Athenæum*, is the summary of a paper read by Mr. H. Wildon Carr before the Aristotelian Society, on April 6, on "Impressions and Ideas—the Problem of Idealism": "The description of experience as consisting of impressions and ideas, which we owe to Hume, is convenient for illustrating the problem of psychological idealism. This is the view that psychical states are the only data of knowledge, and, followed to its logical consequence, it involves the theory known as solipsism. This is the theory that the knower and his conscious states are the only reality, and it is universally rejected as incredible. But idealist theories do not and can not meet it by a direct logical refutation; they reject it on the ground of absurdity, and for the most part resolve themselves into theories of the nature of independent reality. When the ground of an argument can not be disputed, and the logical conclusion can not be accepted, the only alternative is skepticism. This skepticism can be and has to be stated as an ultimate positive philosophical doctrine, and it was so stated by Hume."

THE Society for Philosophical Inquiry of Washington, D. C., held a meeting on May 5, at the George Washington University, in commemoration of Gottfried Wilhelm Leibniz. The program was as follows: "Leibniz's Doctrine of the Pre-established Harmony," by Professor George L. Raymond; "Leibniz's Doctrine of Free Will," by Professor George M. Savage; "Leibniz's Theodicy," by Dr. Edward E. Richardson; "Leibniz's Lasting Contribution to Philosophy," by Dr. William M. Coleman.

PROFESSOR A. L. KROEBER, of the University of California, has returned from an ethnological visit to the Mohave Indians of Arizona and California. His investigations continued previous studies of the mythology, rituals, and music of the tribe. A survey of nearly three hundred shellmounds on the northern shores of San Francisco Bay has recently been completed by the department of anthropology of the university.

THE Right Hon. A. J. Balfour, F.R.S., has been elected a corresponding member of the French Academy of Moral and Political Sciences in succession to Lord Reay, who has been elected an associate.

PROFESSOR CHARLES H. JUDD, of Yale University, will be one of the lecturers in the new department of psychology and pedagogy at Chautauqua this summer.

MR. HENRY WILDE, D.C.L., F.R.S., already a liberal benefactor of Oxford University, has given £4,000 to found a lectureship in natural and comparative religion.

MR. H. B. ALEXANDER, at present engaged in literary work at Springfield, Mass., has been appointed professor of philosophy at the University of Nebraska.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

ON MATERIAL REPRESENTATIONS OF DEDUCTIVE PROCESSES

THE difficulty of describing, representing, classifying, mental attitudes without having recourse to metaphors of a "physical" character has long since claimed the attention of philosophers.

They have not failed to draw from it, according to their special preferences, the most opposed and disparate conclusions.

Thus, for example, while Locke ("Essay," III., 2) sees in it a proof and a verification of his thesis "that all our notions originate in sense impressions," Leibniz, on the other hand ("Nouveaux Essais," III., 1), seeks to draw from it conclusions favorable to the doctrine of the "primordially" of space intuitions (intuitions of direction, distance, motion, etc.).

The advantages and inconveniences inherent in the use of these metaphors offer, however, a field of research which may be described as almost unexplored. The recent publication of a volume calling attention to the importance of this subject has afforded me an opportunity to express some observations on it.¹

To one who proposes to make a systematic examination of the employment of physical metaphors as a means of representing mental facts two roads are open. As in hydrodynamics, when we wish to observe the motion of a liquid in a tube, we may consider a definite section of the tube, determining the velocity and direction of the various portions of liquid which pass successively through it, or we may, conversely, follow a given portion of the liquid, determining the various velocities and directions which it assumes in crossing the successive sections; thus here we may start from the consideration of a definite image, observing what are the various mental operations which it may be chosen to illustrate, or we may, conversely, start from a definite mental operation, and pass in review the different images by which it can be represented.

For any one having, besides a purely theoretical interest in analyzing the mechanism of mental processes, the comparatively

¹In *Leonardo*, February, 1905, reviewing Lady Welby's book, "What is Meaning?" (Macmillan, 1903).

practical intent of drawing, from such an analysis, some indications of the means of regulating the play of mental activities, researches of this second kind are found to be more important than those of the first. It is to one of them—that is, to the analysis of the various physical representations of the deductive process—that I propose here to direct the attention of the reader.

The various types of images adopted to express the fact that a given affirmation may be *deduced* from another can be roughly classified under the following headings:

I. Those in which recourse is had to the conception of “upholding” or “supporting,” as, for instance, when it is said that given conclusions are “based” upon, or “founded” upon, given premises, or that they “depend” upon (or are “attached” to) them. It is thus that we speak of the “foundations” of geometry, the “basis” of morals, etc.

II. The metaphors of “ascending” or “descending,” as when we speak of consequences which “descend” from or may be “traced up” to certain principles, or when we compare the “course” or running of an argument to that of a river, and speak of propositions which “derive” from, “flow” from, “spring” from, “emanate” from, the premises from which they are “drawn.”

In this same group we may collect also the metaphors of a biological character, in which consequences are regarded as “generated” from premises, and the premises as “roots,” “germs,” etc., of the corresponding conclusions.

III. The metaphors referring to the relation of “containing” or “including.” These may be subdivided into two groups, according as the conclusion is regarded as “contained” in the premises, or the latter as “contained” in the conclusion. In the first case the premises are conceived as “implying” (*implicare*), in the second as “explaining” (*explicare*), the conclusion which is deduced from them. The deduction is thus often looked upon as an “analysis” or a “reduction,” that is, as an operation analogous to the work of a chemist who decomposes a body into its elements.

A characteristic of the first two groups of metaphors, that is, of those by which deduction is referred to as a “supporting” or “a drawing” one assertion by or from another, consists in their lending themselves to the embodiment of one of the most radical objections that can be raised against deduction as a means of proof and ascertainment of truth. It is the objection frequently referred to by Leibniz as “*difficultas Paschaliana de resolutione continuata*,” although Pascal was certainly not the first to raise it. (It has never ceased to be enunciated, under the most different forms, ever since the con-

ception of deduction as a special kind of reasoning first occurred to the mind of the Greek sophists and rhetors.) It consists in observing that all processes in which an attempt is made to prove some assertion by deducing it from another must be based, in the ultimate analysis, upon assertions which, in their turn, can not be deduced from any other, upon assertions, that is, which can not be proved without recourse being had to some other process (induction, intuition, etc.) whose validity deduction can not guarantee; and that, therefore, the certainty which belongs to the conclusions of deductive reasoning can not in any way be held superior to that which we are disposed to attribute to assertions not to be justified by deduction. Deduction, therefore, far from being regarded as the type of mental process conducive to "sure" conclusions, should be looked upon only as a means of causing a greater number of assertions to participate in the certainty, which, quite independently of deductive reasoning, *some* of our beliefs *must* already possess. According to that conception of deductive reasoning, a man who only deduces could not be regarded as a *producer*, but simply as a *distributor* of "certainties"—a retail dealer in a commodity which his activity in no way contributes to bring about.

It is here worth noticing that whatever opinion we may entertain as to the existence or otherwise of premises which have no need of proof, it does not prejudice the question of the greater or less value of deduction, even if considered only as a means of ascertainment of our knowledge. Notwithstanding contrary suggestions, arising from images representing premises as "pillars" or "pegs" by which conclusions are "upheld," the advantages we derive, in regard to the certainty of our opinions, by recognizing that one proposition is deducible from another does not consist exclusively in the participation so acquired by the former in the greater certainty which the latter enjoys. The opposite case, in which the truth or certainty of conclusions, deducible from given premises, is apt to increase and consolidate the certainty of the premises themselves, is no less frequent nor less important to be kept in view. The two advantages are very rarely found separated, in so far as there is hardly any branch of knowledge in which the premises are so indubitably secure that they can not receive further plausibility from their leading to conclusions immediately verifiable, while there is no assertion (except, perhaps, those relating to the so-called direct testimonials of our consciousness, in so far as they exclude all element of prevision) whose degree of credibility may not be, in some measure, increased by its agreeing with the consequences of some previously accepted belief.

The relation between premises and conclusion of a piece of deductive reasoning would not, therefore, be correctly described by saying that the latter is "supported" by the former, unless the common image of one object "supported by another" be substituted by the more general and more scientifically precise one of bodies which are "attracting each other," and which, when in contact, do support each other by reciprocal pressure. Of a pebble resting on a rock it is equally correct to say that the whole earth does support it as to say that the whole earth is supported by it.

Analogous observations may be applied to the image which represents conclusions as attached to the premises by means of a "thread" (or "chain") of reasoning. With this image also, in fact, the diffusion and communication of certainty are ordinarily conceived as acting *in one single direction*, i. e., from the premises to the conclusions: no notice is taken of the fact that deduction may also act in the opposite direction, in the same way as the rope with which Alpine climbers fasten themselves in a dangerous ascent does. This rope is, in fact, a guarantee of safety to the last as well as to the first, or to any other among those who are bound by it.

Deductive processes in which the certainty of the assertions, which are taken as starting-point, is greater than the certainty of the conclusions to which they lead, are usually termed "demonstrations"; while those in which the contrary occurs, that is, those where given facts are attached to disputable premises, are usually described as "explanations." But the latter as much as the former are "deductive" processes, and in both cases there is the same need of all the apparatus and all the aids by which the operation of deduction may be made casier and more reliable.

To have taken knowledge of this—to have recognized that, even when the premises of a piece of deductive reasoning are less certain than the consequences drawn for them, it continues to be, nevertheless, important to proceed with rigor, with coherence, and with precision—is perhaps to be considered as one of the chief characteristics of the attitude of modern scientific thought as opposed to the one typically represented by Greek speculation. One is tempted to attribute to that circumstance the fact that the latter, while it showed the greatest constructive audacity in those fields in which, as in geometry, the firmness of the starting points (*axioms*) reached its highest standard, on the other hand, in fields, such as physics and mechanics, where this was not the case, it hardly succeeded in raising itself (except in astronomy) above a rough empiricism, as if it had been almost incapable of discerning any connection between facts besides those which offered themselves spontaneously to a

passive observer not availing himself of any coordinating or selective preconception.

A corresponding tendency to depress and diminish the importance of deduction as compared with other processes of reasoning or of research is also countenanced by the metaphors of the third group above defined, i. e., by the metaphors representing deduction as a process of "extracting" from premises that which is already "contained" in them.

To say that the conclusions of a piece of deductive reasoning are to be found, even "implicitly," "contained" in the premises, differs, indeed, very little from saying that they not only assert *nothing more*, but even assert *something less*, than what is already asserted in the premises themselves.

We know the manner in which the first great theorist of deduction, Aristotle, tried to carry this objection. He had recourse to another comparison, based upon his favorite contrast between form and matter. That is, he compared the work of one who deduces to that of the sculptor, who, by taking from a mass some of its parts, obtains something of greater value than the mass itself. If, however, instead of a statue he had spoken of an instrument or a weapon—say, of a key or of a dagger—also constructed by removing, from a given place in the raw material, certain parts whose presence would be an obstacle to the end which the instrument or the weapon was to serve, the comparison would have been also adapted to illustrate the power of deduction as an organ for the application of knowledge to the end of acquiring more of it.

In a certain sense the contrast between the process of deduction and that, purely or chiefly passive, of observation, contemplation, registration of the data of experience or of intuition, might even be compared to that between the operations of conscription, intended to secure the service of that part of a population which is fit to bear arms, and the operations of taking the census, directed only to the recognition and description of the state of population in a given country and time.

But, as we have already suggested, there is another direction, exactly opposite to the preceding, in which images referring to the relation of "containing" are capable of being employed as representing the relation subsisting between premises and conclusion in a piece of deductive reasoning. Premises, from which a given conclusion is deduced, may be regarded, not as "including" or "implying," the conclusion itself, but, on the contrary, as the more "simple" elements of which it is "composed" or *into* which it may be "resolved." It is the favorite image of Plato, when in the "Theætetus" (200-208)

he compares the fundamental premises of science to the letters of the alphabet (*στοιχεῖα*) from the combinations of which result syllables, words, phrases. And it was natural, as the very title of the works of Euclid shows, that this imagery should find special favor among geometricians, since no other is more fitted for refuting the objection of which we have spoken. In the light, indeed, of this comparison such an objection appears little less absurd than an attempt to dispute the genius or originality of a poet or of a musician by observing that all the words or notes used by him are registered in our dictionary, or in our gamut.

To this remarkable advantage which the images of deduction that we have called "chemical" offer in comparison with the other methods of representation before examined, there is, however, a drawback, consisting in their tendency to give rise to a false (too absolute) view of the contrast between simple and complex truths, and to present as the supreme ideal of scientific research the determination of propositions absolutely primordial, non-decomposable, atomic, capable of generating all others by their various aggregations.

This idea is found under its most determined form by Leibniz, in the comparison he establishes of truths with numerals, each of which, if it is not a prime number itself, is always apt to be decomposed, and in manner only, into a product of prime factors.

By such a metaphor as that, we are inevitably induced to lose sight of the fact that the question, whether a given proposition can be demonstrated or not, can only have a meaning if we determine what are the other propositions whose employment is to be permitted in the demonstration required.

When we speak of deduction as an "*analysis*" we must not forget that the properties of such an analysis are very unlike those of chemical analysis. In the latter, indeed, it could never happen, for example, that, among the "elements" out of which a given body is composed, some be found of which the body in question could also be considered as one of the "elements."

There is, in this last respect, a complete analogy between the process of deduction and that of definition. The latter also is, indeed, frequently represented as a process of decomposition or analysis of "ideas," or "notions" (or of the meanings of words), into more simple or more general notions or ideas.

Both the relation of a complex notion to the more "elementary" notions it implies, and the converse relation of the group of individuals, coming under a given complex notion, to the other groups coming under the more "simple" notions by which the complex one

is defined, are found in Aristotle² represented by the images of "containing" and of "being contained."

Metaphors of the second group above defined, that is, those by which the passing from the premises to the conclusion is qualified as a "descent," and the seeking for the premises of a conclusion as an "ascent," or a "remounting," or "going up," have this in common with those of the type before examined, that they are applicable to the case of deduction as well as to that of definition. Defining also is, indeed, often described as a "tracing up" from particular intuitions to the more general conceptions "*under*" which they are comprised. So in the so-called "tree of Porphyry" the successive ramifications from the trunk represent notions ever more definitely determined, and which are obtained by the gradual introduction of successive specifications and qualifications, in the more general and comprehensive of all classes, *i. e.*, in the class constituted by all "existing things."

An inconvenience, not to be overlooked, which arises from this twofold employment of the metaphors of the last two groups considered—that is, from their being employed at the same time to express the relation between premises and conclusion and that between a notion and the more general notions implied by it—consists in this, that both tend to give plausibility to the conception of deduction as "a passing from the general to the particular," and to make us look upon the greater generality of premises, as compared with conclusions, as an essential characteristic of deductive reasoning. It is difficult to find a different explanation for this mode of conceiving deduction having found favor, in spite of the frequency with which demonstrative processes of quite opposite character (in which, that is, conclusions comprise some of the premises as particular cases) present themselves in the most deductive of sciences,—mathematics.

So far as regards the images which represent deduction as an "*ascent*" to principles, the aforesaid inconvenience is, however, broadly compensated for by the correspondence which they establish between the condition of one who places himself at the point of view of the premises of a deductive process and that of one who, observing a panorama from a height, is in a position to perceive at a glance, between the various parts and regions which are before him, relations which would escape the notice of or be discovered with difficulty by one who was stationed lower down.

An analogous conception is also expressed by the phrases which characterize the process of demonstration or of explanation as a

²τὸ εἶδη τοῦ γένους φασὶν εἶναι μορὰ . . . τὸ γένος τοῦ εἶδους καὶ μέρος λέγεται. "*Metaphysics*," IV., 25.

process of "throwing light," inasmuch as the presence of light has the effect of "economizing experiences" by rendering at once possible the recognition of the respective positions of objects: positions which in its absence could only be determined by subjecting oneself to the shocks and collisions inevitably ensuing from attempts to take direct cognizance of their situation.

Compared with this last metaphor, however, the one first considered, that of "ascent," presents the additional advantage of suggesting, besides the conception of seeing, that of command or power, as when we speak of a "commanding view" or of a height which "dominates" a given region.

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DISCUSSION

STRUCTURE AND GROWTH OF THE MIND

THE publisher of this JOURNAL has been good enough to send me the number of January 16, marking a review of my book on the "Structure and Growth of the Mind"; but it is now March, and the Editor can not welcome a three-monthly discussion in his fortnightly pages. Still all three topics on which the book is challenged fit well the full title of the JOURNAL; they are the brain-and-mind question, the mind-and-experience question, and the subject-experience question. And since my treatment of them, as Dr. Perry presents it, is obviously not worth discussing, and hardly needs repudiating, I may confine myself more to the topics themselves. The only thing about which I should like to complain is his complaint that "there is no contour or difference of emphases, so that reading the book is like swimming under water with never a chance to come up and look about." Repelled by "the undeniable dreariness and obscurity of the preface,"—a couple of pages of print as wide as pica, giving four reasons for not confining psychology to "structural psychology,"—he would not risk the five and twenty pages of contour lines in brevier that follow them. They are, however, a summary of the whole, paragraph by paragraph, which I put at the beginning instead of along the margin, in order that the whole should be read as an exposition of the logic of psychology, and, in particular, an exposition of the theory of the mind in psychology. It is not the mere truth of such a theory that is in question, but the use of it; hence it is only to be expounded setting it to work, and not by showing it to hold here, there, everywhere, like a Spencerian formula with its "Here

again." Dr. Perry has read the book as if it were a collection of topics, to which an index would have been more appropriate. He says "there is scarcely any philosophical topic upon which the author does not make instructive comment," whereas I agree with the familiar diatribes of psychologists against all mixture with philosophy. There is no concern with philosophy in the book beyond the prejudices of common sense about truth and reality, which mislead a beginner if they are not pointed out; and they can be pointed out from particular fact without any philosophy. Nor, as regards the three topics, does psychology need anything from philosophy; the plain particular fact—the fact as science knows it—is enough. It is philosophy that needs for its preface their logical treatment in psychology. This is especially the case with respect to the subject-experience, and with respect to the explanation of experience by the mind. But let me take the three topics in Dr. Perry's order.

1. For psychology the brain-and-mind question is how to understand the two as interacting. The essential point is that used by Wundt, viz., they are not coordinate. For then the view that there is a specific brain change for every variety of experience, and the view that there is not, become a matter of scientific hope or faith which makes no difference at all to the pursuit of psychology, and little to the pursuit of neurology. If I commend the faith in the first lecture, I deal faithfully with it in the last; and there is nothing in the book, and nothing prejudged, regarding the real nature of minds and of nature. It is enough for psychology to mark off their real existence from our individual occasional experience of them, and from that alone. So much is enough, but so much is necessary, and it is especially necessary for a beginner on account of the word *phenomenon*. Strictly this applies to the object in consciousness, or to this plus the real object; but as the application of the word has been extended, two common confusions have taken refuge under it. The first is when it applies to the real object only, —the physical object as science deals with it, "abstracting from its relation to sense," i. e., dealing with it as part of an independent system, or as if it did not need to be felt by any one. "Nature is reality as it is presented to sense, and in order to deal with it as an independent system, we abstract from its relation to sense." This, Dr. Perry remarks, is an "absurd proposition," and passes on. The other confusion is seen in the expression *mental and physical phenomena*. This use of the word is correct if it means nothing but "known facts," but it is misleading because it professes to mean more. To emphasize this I use the word *phenomena* in the first meaning,—the meaning it professes, where all phenomena are mental,

—to translate the piece of scientific faith that I have mentioned. Dr. Perry passes on to quote this translation, because it seems to have reached a lower deep than the other. For he exclaims, "Here is parallelism returning with seven other devils," and proceeds to give them body as marks of interrogation. Again, I think it enough to requote what has shocked him: "A mind and its experiences are realities that are presentable to sense as the brain and its actions. In that respect the mind and experience are not parallel with nature, but part of it. And on the other hand, the facts of nature, including the brain, whenever they are phenomena, are not parallel with mental phenomena, but part of them." I need hardly add that I do not recommend any of the uses of the word, and I doubt if I ever happen to use it; for the term "mental phenomena" itself breeds confusion by obliterating essential differences and their connections. With respect to our other two topics, for instance, it ignores the difference and connection between the subject and the object in experience, for it means the whole content of experience, while professing to mean only the object; and it ignores the difference between a mind and its experience.

2. The difference and the connection between what is object and what is not is a more attractive topic for discussion than either of the other two. It is fresher, for one thing, and less formal. But there are too many issues to select from without challenge, and Dr. Perry simply challenges them all, taking the whole question to be as Hume mistook it. He actually believes that the book contradicts itself because it conflicts with the notion of an idle, unanalyzable constant in experience called the feeling of self. (a) He begins: "When the subject factor in consciousness becomes in a later moment the object of consciousness, it is held to be the same entity, and must possess identical content." No, the two experiences are two entities—two events—even if they were quite alike, and they are not. The first event is the real object which the second one—the thought of it—means, and of which it claims to be true. The book holds that this true thought is no more and no less a duplication of the content of the first event than if the real object were a physical event; it points out, for instance, that when a desire is made object of attention, it ceases for the moment to be a desire. (b) Dr. Perry proceeds: "It must be proper to say that in the previous moment this subject or self was known, at least for purposes of identification; and the subject becomes only one of the objects of consciousness which, like any other object, may pass from margin to focus." But the whole question is whether margin-focus is an adequate description of subject-object. Dr. Perry assumes that it must be, if the subject-experience has variety. For in a foot-note

he quotes the following as a "remarkable statement" to prove that I must mean that the subject-experience is "unanalyzable": "In all experience beyond mere sensation the difference between subject and object is felt. It is not felt as a difference between object and object: we do not think the difference. It is felt as an attitude towards the object." I am at pains to explain how mere sensation develops into the conscious subject-object organization, and how the further development of experience is a development of this organization; and I specify how the subject-experience comes to its organized wealth of content just as the object-experience does. Dr. Perry would think it enough to say that the margin develops a wealth. The marginal part of the object does,—*e. g.*, all that is more or less taken for granted in a thought. But he puts the subject-experience with this, and for no reason but that in neither of them do we make the content the object of attention. (c) With the same obsession he quotes: "In seeking any end I must have thought of it and be pleased with it, but I only seek it when I give myself to it and to realizing it," and adds, "Such distinctions are wholly valueless, because they rest neither on the analysis of function nor on the analysis of content, but only on an appeal to experiences which by definition are incapable of verification." The definition is Dr. Perry's assumption; I expressly give the distinctions as an analysis of conscious functions; distinguishing them from the functions that consciousness performs unconsciously, *e. g.*, the formation of habits. The analysis into conscious functions is as clearly separate from the analysis into unconscious functions as from the analysis into conscious elements. Of course, the value of any method of analysis lies not merely in its being correct, but in its use or power.

3. It is on this ground that I have set out the logic of psychology as in the book. It is easy enough to summarize for readers of the JOURNAL; and, as I have said, its exposition is the purpose of the book.

We account for any piece of experience as a reaction on a stimulus or occasion. We draw the line between stimulus and reaction at any point according to the question to which we want an answer. Hence it is always the reaction that we have to explain, including the question why the stimulus brings just this reaction and not some other. There are three sets of factors always present, which together determine the reaction: there is the experience already in the reactor's mind, there is his mind, and there is his body. The last presents a double problem. One is the structure and the action of his nervous system correlative with his mind and his experience. The exposition of this I have called the indirect explanation of the mind and experience, and I have given reasons for taking it up, for

taking it apart, and for taking it after the direct explanation. It need not concern us here. The other physical problem is the influence of bodily conditions on the reaction. This is one of our three sets of factors which the direct explanation must include. A second, as I said, is the experience already present which the stimulus has to encounter; and the third is the mind. All three are always present, but to mix the three together, *e. g.*, a blood-pressure, a counter-attraction, and a disposition, as causes accounting for an experience, gives a very superficial result. The method of dealing with them is this: The third one—the mind—is isolated and made central, not merely because it develops its structure by experience, and this can be followed as the growing power of reacting to the same stimulus, but also for two further reasons. In the first place, the knowledge we thus get specifies the shares of the other two factors as residual effects, and enables us to investigate them. In the second place, it specifies as residual the difference in natural ability of minds, and the growth and decay of the mind apart from experience; for it “provides a scheme whereby all differences in capacity, and in the seasons for learning, can be read and calculated as differences of rate in a common course which is known.” All this is set out in the summary, as well as in the text: the central problem and its factors in the last lecture of Part I., its exposition in Parts II. and III., and then the other factors and their investigation in Part IV.

So far the logic of psychology is a matter of method, and its claim to be followed is on the score of clearness. There remains the fundamental question in the central problem itself: How are experiences, and how is the mind (*i. e.*, faculties or dispositions), to be used as causal factors? The use of faculties in the faculty-psychology is an old story, but the use of experiences acting on or with one another may be quite as superficial, whether we are considering their mixtures and combinations, or their mutual furtherance and arrest. It is as if, in dealing with active physical energies, we had regard only to the speed of bodies, and neglected their momentum. The momentum of experiences is a matter of mind or faculty, and they have always momentum.

This requires a clear understanding of the relation of the mind or self to its faculties, of the relation of the faculties that explain to the faculties that have to be explained, and of the relation of the self and its faculties to experience. The last is the third topic on which Dr. Perry challenges my treatment; but instead of doing so on the ground that it does not work, or does little, he appears to think that these analyses are made for their own sake, or as if I were on a mission to save the soul. Perhaps he would not let himself believe that the real mind or self is to be distinguished from

every experience of self, quite as the real object from every experience of it. But the book says no less; nor is there any metaphysical horror behind; even Mr. Bradley has this definition of the soul. I do not understand why Dr. Perry should praise "the wealth of penetrating analysis" in the book; there is nothing but its use to justify anything so tedious, and he does not see its use. When, to take again the case of desire, I distinguish (a) the real strength of a desire, (b) this as it is felt, viz., a subject-experience, (c) one of these as real object of a thought and belief, and, again, (d) as it is thought, I should call it all a wealth of pedantry, if it were not necessary in solving problems of the will, and if the solution were singular, and not an application of the general logic. This is the real defect in Dr. Perry's criticism of my treatment of self, faculties, and experience as causal factors, and deprives it of all interest. But I may quote what he says, and follow the quotations with corrections:

"We can eliminate the self because it always functions through one of its faculties." We eliminate self from the list only because we can specify it; but if a student told me that it is specified as one of its faculties, I should suspect him of the faculty-psychology; and if he turned the one into a combination of many, I should be sure of it. "For purposes of explanation, the faculty is not experience" [it never is, whether for description or for explanation], "but operative mental organization; though the reader is encouraged to suspect that it is somehow connected with the experience of self-activity." I am not sure to what this "it" refers, and it does not matter. *Every* experience is reaction of the self on an occasion; and the experience of self-activity is no exception and has no mysterious virtue nor private way of working. It is a very important kind of experience, but that is neither here nor there; its effects, like its causes, are to be explained in the same way as the effects and causes of other experiences.

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THE EXACT NUMBER OF PRAGMATISMS

ANY one who belongs to that group of epistemologists for whom the name of pragmatists has in recent years been adopted, must have read with astonishment Professor Lovejoy's article in this JOURNAL, entitled "The Thirteen Pragmatisms." With astonishment, not so much because Professor Lovejoy has tried to determine the exact number of pragmatisms—there are those who try to determine the exact number of sciences; why, then, not of

pragmatisms?—but because the number of pragmatisms distinguished is so exceedingly small, just a dozen and one. A real pragmatist would easily have been able to distinguish many more, since human life has a good many more aspects than thirteen. But a pragmatist, I fear, would scarcely have taken interest enough in the matter to make these distinctions. Professor Lovejoy claims for his list that it “includes all the genuinely independent contentions that are most frequently illicitly identified, and all the ambiguities of meaning. . . .”

I can not help asking this question: When three men, one a physicist, the second a chemist, and the third a biologist, write three books, a text-book of physics, a text-book of chemistry, and a text-book of biology, is it justifiable to call the contents of these books “genuinely independent contentions”? I think it is not; and I do not see why it should be more justifiable to regard the views of the thinkers criticized as independent contentions. So far as I can see, all these views are in one way or other dependent on each other, for they are all—mathematically speaking—functions of one and the same variable, of the progress of human life. The illusion of their mutual independence is obviously due to the fact that these functions (imagine algebraic and transcendental functions!) are so different in form that, seeing this conspicuous difference, one is apt to overlook the fact that they are functions of the same variable and that, therefore, they are not mutually independent. To the pragmatist Professor Lovejoy still owes the proof of his assertion that the views criticized are “genuinely independent contentions.”

I must raise another question. When the physicist, the chemist, and the biologist, meeting at a convention, put their books on a table and, asked by an outsider what those books are, call them text-books of “science,” has this outsider any right to accuse them of having “illicitly identified” their so-called independent contentions? Right or no right, there will always be those who are ready to accuse them, but the scientists, being pragmatists, will nevertheless continue to put their books together on the table or the shelf.

A third question. Professor Lovejoy exposes to public scorn “all the ambiguities of meaning that are so central and important as to call for serious consideration from both the defenders and the critics of the several opinions to which the one name has been applied.” I shall have to leave the question open whether these ambiguities of the meaning of pragmatism are central or not, for the simple reason that the word “central” is so ambiguous that I should not care to enter into a dispute in which this word would play the chief part. But I do not feel inclined (as a pragmatist) to admit that these ambiguities are “important.” *Science is getting*

along fairly, although the meaning of this word is so ambiguous that a hundred scientists asked to define science would probably give a hundred more or less differing definitions. Why should not *pragmatism* get along equally well, although a hundred pragmatists—if their number is already as large as that—would probably give a hundred more or less differing definitions of pragmatism?

I shall try to show by an example that the distinctions made by Professor Lovejoy are—to a pragmatist—of minor significance and hardly capable of bringing discord into the camp of those who swear by this epistemological theory. The distinction I wish to discuss is that between “the meaning” and “the truth” of a proposition. He refers to this distinction in the following words: “Pragmatism maintained that the meaning of any proposition whatever is reducible to the future consequences in experience to which that proposition points, consequences which those who accept the proposition *ipso facto* anticipate as experiences that somebody is subsequently to have. Now, a theory about the meaning of propositions is not the same thing as a theory about the criterion of truth in propositions.” And farther on he makes a distinction concerning the “meaning” in the following words: “Future consequences in concrete experience may consist in either: (a) future experiences which the proposition (expressly or implicitly) predicts as about to occur, no matter whether it be believed true or not; or (b) future experiences which will occur only upon condition that the proposition be believed.” These “have been habitually confused in the discussion of the pragmatic theory of meaning.” Thus, by making one division first, and another one, a subdivision, later, Professor Lovejoy succeeds in distinguishing the first three of his thirteen pragmatisms.

Reading this, and finding myself unable to assent, I follow the custom of the scientist and call up in my mind a particular case, a special scientific “truth and meaning,” in order to make clear to myself why I can not assent. The high school boy is taught by his teacher in physics that “light consists of ether waves.” Is this a truth or a meaning? The proposition surely has a meaning, for it would scarcely have found its way into the text-books if it were meaningless. And it has truth, too, for the same reason. Can we, then, take away its truth and leave its meaning; or take away its meaning and leave its truth? Certainly no scientist would admit this. The proposition has meaning just so far—neither more nor less—as it has truth. It has truth because it calls up in our minds mathematical formulas by means of which we can reconstruct in a convenient manner in our minds certain very numerous and complicated visual experiences, formulas which have previously served to reconstruct in our minds our experiences with water waves or

the waves running along a clothes line. And exactly herein, in calling up these formulas ready for use, consists also the meaning of the proposition. (For further particulars see Mach's "Mechanik" or his "Wärmelehre," or the writings of Stallo or Poincaré.) If truth and meaning can not be divorced in science, if there they are merely two words symbolizing the same fact, it is unlikely that they can be divorced in pragmatism, since pragmatism is nothing but a highly generalized, an epistemological statement of the principles which are in daily use in the special sciences.

When the high school boy goes to college and takes a course in the theory of light and electricity, it may be that his teacher does not say a word about ether, and in reply to a direct question perhaps advises the boy to free himself from that notion altogether. Neither does the teacher speak of waves, but perhaps of the distribution of energy in time and space, pointing now at this, now at that one of the mathematical formulas which he derives and constructs in order to represent this distribution, and calling these formulas, not waves, but simply periodical functions. Here is an opportunity for the opponent of pragmatism to step in and assert that this proves that the proposition "light consists of ether waves" has lost its truth, while it has retained its meaning. But apparently only. It has by no means lost its truth. Only by ceasing to have a meaning can a proposition lose all of its truth. The teacher does not call it a truth, because he, personally, under the present circumstances, has no use for it. He is like a workman who has two spades, one sharp and the other dull, and, when asked why he does not use the dull one, would say in derision: "Well, that is no spade at all." And yet, another workman, unable to buy a spade, might gladly accept the dull spade and use it. And the first workman will admit, this time, that it is a real spade, without minding a third person's accusing him of being guilty of a so-called logical contradiction. Just as a spade may be a spade in a higher or less degree, so a truth may be a truth—shocking as this may seem to one who is not a pragmatist—in a higher or less degree. It ceases to be a truth only when it has lost all meaning.

"But I can not see that this really follows," Professor Lovejoy tells us. "The assertion 'God exists and mere materialism is false' may possibly mean only the anticipation of a cosmic future different in specific ways from that which the acceptance of the contrary proposition would lead one to expect; but the criterion of the truth of the assertion need not be correspondingly future." In order to prove this, he points out that we may *be obliged* to accept the proposition as a true postulate *now*, before we have experienced that cosmic future. It is strange that he should have failed to see that

being obliged means a relation of the present biological condition of an organism to its *future* biological condition. A rock, which has no life, never *is obliged*. A definition of truth which has no reference to the biological future of an organism is an absurdity. To escape this reference to a future is impossible. We certainly do not escape it by seeing to it that the word "now" appears in the sentence which expresses our argument. "That the pragmatic man never is, but always is about to have been, blest with knowledge" may have been intended to make him appear ridiculous. But the pragmatic man is not only willing to accept the word as a truth, but is even ready to put it proudly as a motto upon his shield.

As woman was created from a rib of man, so Professor Lovejoy's third pragmatism is created from a piece of the second pragmatism's skeleton, from those future experiences which occur only in case the proposition is believed. But as man and woman in a certain sense are biologically one, so these two pragmatisms are one to the pragmatist.

At the first glance it seems very plausible that, if the meaning of a proposition is reducible to the future experiences *to which that proposition points*, its meaning can not well be reducible also to those future experiences *which occur only in case the proposition is believed*. But the apparent importance of the distinction vanishes when we take time to scrutinize it. Let us assume that the proposition in question is this: "The temperature in heaven is lower than the temperature in hell." What are the future experiences of the first class, to which this proposition points? There are in this case none at all. Who has had these experiences before? Even the most orthodox believer is unable to tell us that any of his friends, who have just returned from an excursion to these places, have made a report to that effect; or that he has found a description of such an excursion in a book which he has reason to regard as a reliable source of historical information. No pragmatist can admit, therefore, that the proposition "points" to any future experiences of temperature. But while the proposition does not symbolize what could be called by the pragmatist, in any of the senses accepted by him, future experiences of temperature, the pragmatist readily acknowledges that the word images, of which the proposition is composed, have often occurred together in human minds, accompanied by vivid imagery of the visual, the temperature and other sense departments, and that they have undoubtedly been followed by future experiences of religious emotion, of moral conduct, of giving away money for the erection of a church, and many others. What, then, are, to the pragmatist, the future experiences to which this proposition points? Certainly not those of temperature, but exclusively those of the sec-

ond class, just exemplified. If it had not been for the future experiences of this kind, the church of the middle ages would never have called this proposition a truth. And for the very reason that these "future" experiences no longer succeed the consciousness of the proposition, although temperature images may, and naturally often do, succeed a consciousness of the words, the modern church no longer, at least no longer generally, calls the proposition a truth. We see here again the identity of meaning and truth. The proposition's meaning does not consist, pragmatically, in temperature imagery, but in the conduct of human life anywhere, that is, in its biological significance for human beings. As soon as this *meaning* is lost, the *truth* has likewise ceased to exist. As soon as the proposition has lost its *truth*, it has, as a proposition, also lost its *meaning*, although the linguistic elements of which it is made up, continue to appear familiar and to call up all kinds of other images of words and things.

The question as to the exact number of pragmatisms is easily answered. Just as there are really as many sciences as there are scientists, so there are as many pragmatisms as there are pragmatists. Count them! But however great the number may be, neither science nor pragmatism is any worse off on that account.

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REVIEWS AND ABSTRACTS OF LITERATURE

Aspects of Child Life and Education. Compiled by G. STANLEY HALL.
Boston: Ginn & Co. 1907. Pp. xii + 326.

This book is made up of a series of nine articles written by G. Stanley Hall and some of his students. All these articles have appeared previously in some journal, most of them in the *Pedagogical Seminary*, but they are here "revised, condensed, or amplified, and provided with up-to-date bibliographies on each topic." By publishing them in book form Dr. Hall hoped to emphasize the relations between the different parts of the domain of child study, and by contrast to set forth their manifold applications.

The articles differ considerably in importance,—some are of interest from an historic point of view, others because of their practical bearing on the education of children. Of the former, the paper "The Contents of Children's Minds on Entering School," published twenty-five years ago, marked the beginning of the child-study movement in America, while "The Story of a Sand Pile" and "Boy Life in a Massachusetts Country Town Forty Years Ago" are probably two of the best-known single articles Dr. Hall has written. Of the second group, the paper on

"The Collecting Instinct" and the one on "Curiosity and Interest" offer many suggestions, some of which are now being worked out in the methods and materials used in teaching. The questionnaire method has been used throughout as the means of securing material, but as this method has been criticized elsewhere it is enough to mention the fact.

The book opens with Dr. Hall's historic article on "The Contents of Children's Minds." It summarizes the results of the Berlin study, those of Dr. K. Lange, Dr. B. Hartmann, and J. Olsen, as well as his own study of Boston children. The general conclusions are: (1) That there is next to nothing of pedagogic value the knowledge of which it is safe to assume at the outset of school life. Hence the need of objects and the "danger of books and word cram." (2) The best preparation parents can give their children for good school training is to make them acquainted with natural objects, especially with the sights and sounds of the country, and to send them to a good kindergarten. (3) Every teacher on starting with a new class or in a new locality should find out, with all the tact and ingenuity he can summon to his aid, what is already known by his class. (4) The concepts which are most common in the children of a given locality are the earliest to be acquired, while the rarer ones come later. Boys seem more likely than girls to be ignorant of common things right about them. (5) The actual content will depend on the environment of the children tested; the results gained from one locality can not be assumed to be valid for another district. Much of this seems like an old story, so thoroughly have we incorporated these conclusions in our principles of teaching. Still every teacher is probably making mistakes along just this line, and an examination of the tables presented in this study will mean time saved later, in that it will result in still greater caution in crediting young children with knowledge common among adults and will emphasize afresh the need of the application of the well-worn principle of apperception.

The second paper, "The Psychology of Day-dreams," by Theodate L. Smith, is interesting, though, perhaps, of little pedagogical value. It is based on answers to a questionnaire which was sent to normal-school students, pupils in the grammar grades, and adults, and may be summarized as follows: Day-dreaming appears to be a normal and well-nigh universal phenomenon in children and adolescents, and may continue throughout life. With the dawn of adolescence there is a marked increase in the variety and complexity of content. The emotional element becomes prominent. Sex differences are especially marked in day-dreams, largely due to environment and conventional training, but possibly due to some extent to innate, fundamental differences between men and women. In childhood the dreams are made up of memory images, actual experiences, and stories, being reproduced with but little change. Eating and motor activities figure largely in the content of childish dreams. In adolescence the dreams are of a vague future, with boundless possibilities, and of love. Those of the adult seem to be in closer connection with actual life. In old age the day-dreams are memories of the remote past. Day-dreaming may become excessive and pass over into pathological

states; and in consequence of the fact that it is usually enjoyable, a passive state, and that it is often associated with high intellectual endowments, it is peculiarly liable to this danger. It is interesting to note that many of those who indulged in it frequently had some sense of moral wrong-doing—children often vaguely, but youth often definitely and strongly.

The paper on "Curiosity and Interest," written by G. Stanley Hall and Theodate L. Smith, is one of the most interesting and suggestive from a pedagogical point of view. The results seem to support the statement made by E. A. Kirkpatrick, that "curiosity alone is a sufficient motive for the invasion of every fresh field of knowledge." The material was collected mainly from answers to syllabi, the total number of which was 1,247, and also from some individual child biographies kept by mothers. From a careful examination of these records it is concluded that four stages of development are recognizable: (1) Passive staring, manifested in infants as early as the second week. (2) Surprise, usually noticed in the second month. (3) Wonder, a little later than surprise. (4) Interrogation, or curiosity proper, which appears about the fifth month. Interest and curiosity are shown with regard to sensations in the following order: sight, hearing, touch and muscle sensations, smell and taste. These do not successively predominate, but overlap. Curiosity is manifested by (1) observation, passive and active; (2) experiments, under which is a discussion of cases of apparent cruelty; (3) questions about (a) forces of nature, (b) mechanical forces, (c) origin of life, (d) theology and Bible stories, (e) death and heaven; (4) destructiveness; (5) desire to travel. The records and discussions of questions asked by children are of vital importance to teachers as showing the vast amount of natural energy and intelligence which they have at their command, and also as emphasizing some of the particular lines along which children ask for information and need instruction. Aimless curiosity is rare, and in normal children is a sign of fatigue. Curiosity and attention go hand in hand in development, and lack of either shows either mental deficiency or poor pedagogy.

"The Story of a Sand Pile," by G. S. Hall, reads almost like a "Robinson Crusoe" written for adults. It is the account of how a few boys, during several summer holiday seasons, worked out in their play, with a sand pile, various stages of community, social, and industrial life. This sketch illustrates in a telling way many of the pedagogical principles which are being emphasized in the present-day methods of teaching, and also it shows what boys can and will do if left to themselves in a suggestive environment.

"A Study of Dolls," by A. Caswell Ellis and G. Stanley Hall, is based on 648 answers to a questionnaire from normal and high-school students and some adults. The results are summarized, and given in detail, under the following headings: materials of which dolls are made, substitutes and proxies; psychic qualities; dolls' food and feeding; sleep, sickness, death, funeral and burial of dolls; dolls' names; discipline; hygiene and toilet; families, schools, parties, etc.; accessories. I quote

some of the most interesting conclusions. The educational value of dolls is enormous. It educates the heart and the will even more than the intellect, and to learn how to control and apply doll play will be to discover a new instrument in education of the very highest potency. The individuality of children is more clearly revealed in the characters they give their dolls than in their own traits. The returns do not show any law of relationship between the size of the doll and the size or age of the child, save that the extremes of large and small develop their chief charm well on in the doll period. Doll play is an early cropping out of mother love, only in a limited and partial sense, and there must be much readjustment of opinion on this point. Some mothers very fond of their children now never cared much for dolls, while unmarried women and childless wives have been most enthusiastic devotees of dolls. Indeed, it is just possible that the ideal mother never played dolls with great abandon. Certainly, other functions than the maternal are more pronounced, for the play also seems natural for small boys. Dolls could aid in teaching almost everything. Some children read stories in order to be able to tell them to their dolls, others practise their French upon them. Many learn to knit, sew, etc., design costumes and prepare food for their dolls. Could not children's interests in and attitudes towards dolls be used to teach rudimentary sociology, ethics, science, anatomy, etc., in their most-needed and effective form? Dolls are a good school for children to practise all they know.

The paper on the "Collecting Instinct," by Caroline Frear Burk, is one of the most suggestive of the series. The study is based on the records of 1,214 children, from six to seventeen years of age, and concerns itself with the following questions: universality of the instinct; distribution of interests by age and objects collected; stages of development; methods of collecting; arrangement of collections. "The collecting instinct, passion, or interest is wonderfully universal and wonderfully intense among children. The age at which it is of greatest pedagogical importance is largely in the preadolescent period, before which collecting is more or less a blind, groping, purposeless instinct, and after which it largely loses its purity by being bound up with other associates, but during which period it reaches its greatest intensity and genuineness. Here we find the greatest reveling in quantity, here the time when the instinct acts most easily through the incentive of wide imitation, here rivalry comes in to add zest, here the true naturalist's spirit of finding and hunting as opposed to receiving or buying is most prominent, here the beginnings of a sense of classification develop. Here we find the nature interest at its crest, and this is the time for sending children forth to gather in nature's stores, to let them roam and wander and to encourage their naturalist clubs." Besides these nature-study collections a remarkable variety is shown in the kinds of things children collect. What they collect seems to be largely the result of circumstance, environment, suggestion, or imitation, but to collect something seems to be an instinct *per se*.

"The Psychology of Ownership," by Sinus W. Kline and C. J. France, is "an attempt to investigate the origin and nature of the instincts and

motives that operate in the accumulation of property and to describe more thoroughly than heretofore attempted those mental states arising from the consciousness of things owned." The paper is based on material gathered from biological, anthropological, historical, and child-study sources. The conclusions from the study of the child's attitude towards property seem to be the most definite and practical. Property is a great factor in developing the mind of the child, in teaching him about himself, in developing self-consciousness, enlarging his personality, and in teaching him respect for property in others. All that property has done in evolving the mind of man is repeated to some extent in the history of childhood. Above all, property-getting in childhood is of prime importance because it is anticipatory. The pedagogical value of children's collections is pointed out in this connection, and the question is raised as to whether, in furnishing children with books and other school appliances without giving them outright, we do not violate this property sense and detract from the child's dignity and self-respect, for "property is the very backbone of personality."

"Fetichism in Children," by G. Harold Ellis, is a short paper stating the things children use as fetiches and the significance of the whole attitude. The recapitulation theory is urged as explanation for many of the objects regarded as charms as well as for the tendency in general. Mr. Ellis believes that in the child are found all the elements that, united, make man a religious being, and that though intellectually we have risen above the savage, emotionally we are at about the same level.

The last article of the series is Dr. Hall's "Boy Life in a Country Town Forty Years Ago." It might have been called "The Disadvantages of Progress," for in it the author portrays the environment which he considers the best for boys between the ages of ten and fourteen, namely, that of the New England country town of about forty years ago. This life, according to the author, combines physical, industrial, and technical with civil and religious elements in wise proportion and pedagogic objectivity; it is "the one and only one that represents the ideal basis of a state of citizen voters as contemplated by the framers of our institutions." Dr. Hall then goes on to give some of the occupations, serious and otherwise, of the men, women, and children of this time. How the men made their ax helves, butter paddles, flails, bread troughs, cheese hoops and cheese ladders, scythes, pop-guns, etc., while the women were expert in carding, weaving, and spinning, the wool used being shorn from their own sheep and the flax raised in their own fields. Besides having some share in all the industries of the farm, there were all the outdoor sports and games for boys and girls,—so many more than we have to-day! Then there were the evenings spent in the light of home-made candles beside open fires, with the husking bees and paring bees, quilting bees and patching bees, spelling and singing schools, and stories without number. These evenings were not dangerous to morality, but turned to good account. "The farm was a great laboratory, tending, perhaps, rather more to develop scientific than literary tastes, cultivating persistency, if at the expense of versatility. Some such training the heroes of '76 had; . . .

such a people can not be conquered, for war and blockade would only drive them back to more primitive conditions and restore the old independence of foreign and even domestic markets." Although, perhaps, most people would not quite agree with the cry that the old times were the best, yet as one reads Dr. Hall's descriptions of all the possibilities of those strenuous times and realizes the limitations under which the majority of city children of to-day labor, one must echo afresh the cry that is being heard on every side for more that is vital, living, and real in the education of the children of our public schools.

To have such a series of articles published in book form, instead of scattered through various periodicals, will be a boon to many a teacher and educator. One is tempted to wonder what the principle of selection was which governed the compiling of the book, and, perhaps, to wish for a little unity of material in such a book; but as Dr. Hall in his preface acknowledges this lack and promises better things of others which may follow, we can afford to rest content.

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An Outline of the Idealistic Construction of Experience. J. B. BAILLIE.

London: Macmillan & Co. 1906. Pp. 344.

The book divides itself into two parts. The first portion is an enunciation of the view-point of the writer and lays down the principles governing the book as a whole. The second part, which begins with Chapter V., is a statement of experience according to the general plan contended for in the first four chapters of the book. The first portion of the book is unquestionably the more important of the two, for if the contentions of these earlier chapters are admitted, the remaining chapters, so far as their general scheme is concerned, follow quite readily. In other words, the author (Professor Baillie) first constructs and defends his main principles and position; and then, having done this, the application of the same, or the fitting of the different kinds of experience together in accordance with the theory previously set up, becomes a comparatively easy task as a whole although attended with difficulties in certain instances. Of the first division of the book mentioned above, Chapter I. (introduction) is the most important and the most difficult to understand of the first four chapters. This introduction, so called, is in fact the crucial chapter of the entire work, and if the main contentions of this part of the book are admitted as substantiated, the criticism that may be directed against the rest of the book is more of the nature of detail criticism than otherwise.

That Professor Baillie's line of thought is Hegelian will hardly be denied, yet this is, perhaps, all that can, in fairness, be said of the relation of this book to the philosophy of Hegel. There is an undoubted Hegelian trend of thought found herein, which is, perhaps, to be expected from one who is the author of "Hegel's Logic." However, "Idealistic Construction of Experience" is not a rehash of Hegel by any means and does not approach as closely to Hegel in many particulars as has

been suggested. Professor Baillie may be the most "orthodox" of present-day Hegelian writers, as stated by Professor Hoernlé, but, be that as it may, Professor Baillie is not Hegel by any means. Did the time permit, I would like to point out certain differences between Professor Baillie's idealism as enunciated in this book in question and Hegel's idealistic philosophy. It may be mentioned in passing that it would seem hardly fair for some critics of Professor Baillie to say, on the one hand, that it would be better after all, instead of trying to Hegelianize a new idealism, to return squarely to Hegel, and, on the other hand, to say that Professor Baillie has taken no notice of the philosophical work that has been done since 1806.

The endeavor that is made in this book to do justice to pragmatism and idealism alike is a commendable one and shows a philosophic rather than a partisan spirit. The question is whether the author has actually succeeded in doing this or not. For those who are not pragmatists the question especially arises whether Professor Baillie has not sacrificed more of idealism than of pragmatism in this attempted union of elements of each. This remark applies more particularly to his discussion of these two philosophical movements in the first part of the book than his actual systematic construction of experience later on. The attempt that is made in the above regard is by finding some element common to both individual and universal experience—which last is, according to the author, also individualistic in a way, *i. e.*, it falls within individual experience and we part with universal experience *per se*. This common feature is purposiveness. This last, then, is of marked importance, it would seem, for Professor Baillie's construction of experience, and yet the surprising thing is that it has received so little attention at his hand. Moreover, the way or reason for the statement as regards the alleged fact that purposiveness is the means whereby the union and destination of the individual and universal elements in experience are to be made, is not made plain. The writer makes the unqualified statement that this is so, and leaves us largely in doubt as to whether we should accept this as true or not. Again after a brief mention of purposiveness here, it apparently drops out of sight, as I do not recall any further mention of it. This may be accounted for inasmuch as "purposiveness" only serves a purpose with the writer, albeit an important one, so far as the principle deduced from the use here made of purposiveness is concerned. The purposiveness in the various phases of the individual life is to establish consciously the sense of unity in the individual experience. It seems strange that Professor Baillie should have left the reader in any doubt as to why this unification of experience is of such importance—"the one supreme fact." In the absence of any detailed presentation of a question of such moment, it must appear as if this position on the part of Professor Baillie is an assumption. This "unity of experience" is the crux of the entire book. Thus it would seem as if particular pains should have been made to elucidate and ground this vital point of the book. "Value," "validity," and "significance" have meaning, just in reference to this one point. Here Professor Baillie be

what enamoured of the pragmatist's doctrine. The test of value is that a theory has "worked out," viz., has contributed to the securing of the desired unity, which is that which is always aimed at in experience, he declares. It is true that the author accords an objective validity to this unity, but this so-called "objective" gives one the after-taste that it is just about as subjective as objective.

It would seem as if the author's treatment of universal experience, although not really inconsistent, would at times give an impression which might be misleading. We are told that the reality of universal experience *per se* must be abandoned, and yet he says that "the process of history is the way in which it [universal experience] appears." Its appearance in the course of historical experience is obviously not the experience of the mere individuals composing the historic groups, which last would be their combined experience, not *its* experience, which must, from a statement like the above, be considered as something apart from the aggregation of separate experiences. If it has an experience of its own, even though this finds manifestation or realization in the historic experiences of individuals, yet, after all, this is not identical with the individual experiences, but is something apart from them, hence it has a reality of its own; and this last point should not be obscured by the more extended denial of the reality of "universal experience *per se*" (as the author so frequently says) which Professor Baillie carefully points out. His position here might be characterized as the Aristotelian rather than the Platonic.

Conception and judgment receive scant respect at the hands of Professor Baillie. These are "devices for saving time," yet find their justification for existence or use in that they are aids to the unification of experience, which last is, first and always, the criterion, or point in relation to which, all else is to receive its orientation. Conceptions are consciously selected to reach the sought unity. If they accomplish this result, they are true; if not, untrue. The end of knowledge is presentational unity. I can not but feel that Professor Baillie's estimate of knowledge is an inadequate one. It is pragmatic, and yet smacks of Kantianism.

There is developed in Chapter IV. a point which is of importance as regards the general method pursued by the writer in the construction of experience. According to Professor Baillie, experience is explained and rationalized if the connection of its different phases is shown. To state the connectedness of experience is to indicate its necessity and rational character. Each part is to be assigned its appropriate place in the scheme of the whole, and if this can be done, the writer maintains, that experience will thus be self-explaining. This is an attempt to give a logical, schematic character to experience, which plan is worthy of careful thought. The question is whether this will "work out," and hence, to use an earlier criterion of the author, have validity. Professor Baillie apparently anticipates a criticism that might be brought here; and this criticism is, how are we to know that any particular connection or arrangement of the moments of experience is, after all, the correctly

connected order? Might not some one else challenge our arrangement, which we may make in all confidence, and find adherents to his new plan of experience? The statement that the method whereby this scheme of experience is a combination of both subjective and objective elements, would seem to arouse the anticipation that perhaps a true and unassailable connection is to be given. It is to be an "absolute" connection. After all that Professor Baillie has to say upon the subject of the connection of experience, he virtually introduced nothing new here. He returns to what has been already emphasized, viz., unity of experience. This last is something of great import for the entire book. This same fourth chapter deals to quite an extent with the thought that experience is self-explaining, that the explanation of experience is to be found within experience itself, etc. This seems almost a truism when the term experience is used in the broadest sense, as it is so used by Professor Baillie. As used by him, everything known, felt, etc., comes within experience, and, of course, there is nothing for us that is without experience; hence the explanation and connection or anything else pertaining to experience is within the breastwork of experience. However, this chapter in question will well repay careful reading, and it is on the whole a forceful incentive to meditation along the lines which it takes.

Despite its undoubted faults, this book is, on the whole, worthy of serious consideration in these days of somewhat superficial philosophical thinking.

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JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. March, 1908. *The Problem of Truth* (pp. 114-137): H. N. GARDINER. — Truth is concretely a property of particular truths expressed in propositions. In this sense truth is not a defining quality of real beings. We must distinguish in cognition the act or process, the object and the meaning of the sentence in which truth or falsity is predicated or denied of a proposition. True and false are primarily predicates of this meaning. The chief objection to pragmatism is its difficulty in accounting for the universality of truth. *Subjectivism and Realism in Modern Philosophy* (pp. 138-148): NORMAN SMITH. — The contradiction in subjective idealism is in the conception of mental states related to objects as their cognitive apprehensions and also as their mechanical effects. Realists should examine exhaustively the theories of Avenarius and Bergson, that the brain has a motor and not a cognitive function. *Green and Sidgwick on the Community of the Good* (pp. 149-166): G. F. BARBOUR. — Green held that the true good has a common and non-competitive character. Sidgwick opposes position. Reconciliation is possible by regarding the common competitive good as an ideal and regulative principle. The

ethics to be a normative science justifies such normative principles. *Proceedings of the Seventh Meeting of the American Philosophical Association* (pp. 167-190). *Reviews of Books*: Rashdall, *The Theory of Good and Evil*: W. CALDWELL. Lipps, *Asthetik: Psychologie des Schönen und der Kunst. Zweiter Theil*: J. H. TUFTS. Riley, *American Philosophy. The Early Schools*: E. L. VAN BECELAERE. Bakewell, *Source Book in Ancient Philosophy*: H. N. GARDINER. *Notices of New Books. Summaries of Articles. Notes.*

Allan, Andrew. *Matter and Intellect*. A reconciliation of science and the Bible. London: A. Owen & Co. 1908. Pp. 224. 5s.

Driesch, Hans. *The Science and Philosophy of the Organism*. The Gifford Lectures delivered before the University of Aberdeen in the year 1907. London: Adam and Charles Black; New York: The Macmillan Co. 1908. Pp. xiii + 329. \$3.00 net.

Hardy, T. J. *The Gospel of Pain*. London: George Bell & Sons; New York: The Macmillan Co. 1908. Pp. 223. \$1.25 net.

Marie, A. *La pellagre*. Paris: V. Giard & E. Brière. 1908. Pp. 250. 4 fr.

Rey, Abel. *La théorie de la physique chez les physiciens contemporains*. Paris: Felix Alcan. 1907. Pp. v + 412. 7.50 fr.

Rey, Abel. *L'énergétique et le mécanisme au point de vue des conditions de la connaissance*. Paris: Felix Alcan. 1908. Pp. 186. 2.50 fr.

Stocker, R. Dimsdale. *Spirit, Matter, and Morals*. London: A. Owen & Co. 1908. Pp. 97. 1s.

NOTES AND NEWS

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

GENTLEMEN: In a recent review of Dr. R. M. Yerkes's book on "The Dancing Mouse," I made the statement that a satisfactory demonstration of Weber's law could not be obtained for the brightness vision of the dancer. In rereading Dr. Yerkes's conclusions, I find that he does state that "... a difference of one tenth is sufficient to enable the animal to distinguish two lights in the case of the three standard values, 5, 20, and 80 hefners." He states, furthermore, that when the difference was made one fifteenth, the animals could no longer make the discrimination.

JOHN B. WATSON.

UNIVERSITY OF CHICAGO,
May 16, 1908.

THE George Washington University has established a separate department of psychology, with Williston S. Hough, Ph.M., Shepherd Ivory

Franz, Ph.D., and William Carl Ruediger, Ph.D., as teaching staff. There are to be two psychological laboratories, one for elementary class instruction and experiments bearing on educational problems, and one for the advanced research work of graduate students.

DR. A. E. DAVIES, assistant professor of philosophy in the Ohio State University, has been advanced to the rank of professor of philosophy.

DR. T. H. HAINES has been promoted, at the Ohio State University, from assistant professor of philosophy to professor of psychology.

DR. I. WOODBRIDGE RILEY has been appointed to the chair of philosophy at Vassar College.

The Philosophical Review will be published henceforth by Longmans, Green and Company.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE FUNCTION OF IMAGES¹

I. *Introduction.*—As genetic psychologists, it may be well for us to consider for a moment how this discussion arises and how it is that I occupy the position of opening it. From time to time there has been incidental, but sharp, opposition between certain members of this society as to the functions of images. Two members (there may be others), Dr. Rivers and myself, have protested that images do not perform certain alleged functions in our mental processes, because we haven't any images worth considering. In a paper read at the last meeting of the society, a member referred to this and put forward a friendly challenge that Dr. Rivers or myself should read a paper on what we considered to be the function of images. The position is illustrated by the following story:

THE FOX WITHOUT A TAIL. A PSYCHOLOGICAL FABLE

Early in the twentieth century, among a small society of learned foxes, there were one or two who had no tails. Several times in the year these foxes met to discuss the prey they had captured in the intervals, and many references were made to the value of their tails (which, in some of the members, were very large and bushy) in hunting it down. Some said that if they wished to do a new and clever trick, they made a preliminary experiment with their tails, and so clearly saw what was wanted. After which, with a voluntary jerk or let-go, they performed the action which their prescient tails had foreshadowed. As a means of comparison, too, the tails were said to be very useful. A really observant fox, when he looked at something and wanted, later on, to compare it with something else, found it very useful to think of his tail in between. Some even asserted that one could not recognize anything unless the activities of his tail came into play and helped out the sensations of the present moment.

¹ A paper read at University College, London, January 25, 1908, at the annual general meeting of the British Psychological Society. The lecture form is preserved.

The tailless ones asked how all these things could be, since they could do new and clever tricks as well as the others; they could compare things as well, and knew what was what as well as the rest did. And yet they had no tails at all, that is, not in the daytime; they might have suspected themselves of a tail or two at night just before going to sleep.

After a time they waxed bolder and declared, not only that they did not need tails to do these things with, but that the others, though they thought they did them with their tails, did not really do so, and that the tails, on which they prided themselves so much, were actually in the way. The best thing, they thought, for all foxes to do would be to get rid of them.

At this stage it was suggested that one of the tailless ones should explain, by the use of actual examples, precisely what he thought the others did with their tails. Rashly, he said he would, and the rest smiled, for they knew best what they did with their own tails.—*After Esop.*

II. *Some General Considerations Against the Older Theory.*—The first great difficulty in the way of the older theory of the function of images is the existence of persons who have none or almost none without, apparently, any disturbance in their normal mental life. If that theory as to the use of images in perception, comparison, and voluntary motion were true, such persons should be found only in asylums or schools for the mentally defective. They have not yet, apparently, all been incarcerated.

Not only are the imageless ones not defective intellectually, they do not even appear to be inferior. Galton, for example, found men of science (they were not psychologists) deficient in imagery as compared with other people. One remembers the "boat" which the young lady decked out with pretty colors, fair dames, and noble squires, when all that he had said was, "I want to tell you about a boat." We can suppose the feeling of contradiction and loss of power in readjustment which would arise if the subsequent narrative refused to coalesce with this image. His male listener lapsed into no images, his unspoken attitude being, "Go on, the boat will a good deal depend on what comes next."²

Perhaps, however, it would now be admitted that images are not essential to conceptual processes. It would not, however, be so readily admitted that they may be a hindrance. "A fellow-student of mine at Cambridge, a great visualizer, was much distressed by a 'bale of cotton on a wharf,' which popped in view whenever the word wealth appeared, and became the King Charles's head of his

² Winch, "Problems in Education," p. 49.

papers in economics.”³ And many of my hearers can doubtless supply similar cases from their own experience.

III. *Suggestions to Account for the Great Vogue of the Older Theory.*—If there is any relevance at all in the considerations above adduced, how do we explain the great vogue of the opposite belief? With reference to percepts, I suggest the following explanation:

“Past process certainly modifies present process; of that there is no doubt.” We see more in a thing this time because we have seen it before, and we see more easily what we have seen before. If we observed wrongly the first time, error will tend to perpetuate itself and we are likely to go wrong again. “Thus, when the question arises as to the way in which this influence is exerted, what more likely than that attentive inquiry, fixing itself retrospectively on past processes, should give rise to images, which we accept as what *must* have made our present percepts what they are.”⁴ Again, if we fix our attention on the present process of perception and try to separate its stages, images do arise with most of us. Thus, the belief in the potency of the image may be, to some extent, a product of the psychologist, who, in stopping the process to examine it, has altered the process itself. Introspection, if it is to be successful, should watch and analyze the process as it normally goes on.

The case is somewhat similar with respect to memory. When, for psychological purposes, we try to remember something, images frequently arise. But do they when, as in ordinary life, we remember for a purpose, or do they in school or college when we remember to reproduce? And, if they do, how much do they help us?

In the case of voluntary movement, our present belief is largely owing to the schematic simplicity of the current view, namely, that voluntary movement arises when we “will” that an “image” of movement shall become realized. “You *must* have an image of the movement, or how can you know what movement to make?” That has been the substance of many replies to me during the last few years. To those who do not feel its cogency, I can only say that, in the days when I thought more of what is called “logical priority” and less of psychological sequence, that argument seemed to me to be perfectly sound.

I now pass to a detailed analysis of the alleged work of images in various mental processes.

IV. *The Function of Images in Perception.*—Perception, as you all know, was held to be a compound of image and sensation. One great difficulty in the way of this belief is the moral certainty of

³ *Ibid.*, p. 48.

⁴ *Ibid.*, p. 45.

accurate perception in lower animals, such as fishes, who are not believed to have any images at all. A second difficulty is that we can recognize things of which we can form no images, and which, indeed, we may have quite forgotten. *Quite* forgotten? Yes, not only could we recall no image of them, we should not know what to answer if we were questioned as to their very existence. I remember this conclusion flooding my mind, when, for the second time, I walked down the road from Bournemouth and came in sight of the church at Poole. I recognized it at once, the percept came familiarly to mind. I knew I had seen the church the preceding year; but I knew also that not only could I not have imaged it, but that if I had been asked in the interval whether there *was* a church at Poole, I should have answered that I did not know.

I will take a further illustration, which will probably appeal to the personal experience of every one of my auditors. We can perceive that a change has been made, say, in the furniture of a room, and can often tell what that change is, even though we could, had we been asked, have formed no image of its contents, nor, indeed, have stated what they were.

Passing on to later perceptual stages, in which I do not deny that most of us *can* call up images of past experiences when experiencing present sensations, the question to ask is, Do we do so? Do we, when seeing a yellow shape of a certain size, call before us images of taste and smell and weight, and then say, "Orange"? I use the orange because it is suitable to the season, and because it is a fruit much loved by English psychologists. Professor Stout, in his lectures, used to illustrate a similar question about perception with a candle, doubtless to throw light on the orange.

The genesis of the older view is, I suggest, explained thus: There seemed to be association of some sort, so, of course, it was regarded as "association of ideas"; they were the only sociable mental elements in early psychology, and "ideas" were tantamount to images. But this point need hardly be labored. It is now generally admitted that the formula for association is a much bigger thing than the old formula for the association of ideas. The present sensation does tend to revive something resulting from the past sensations with which it was previously complicated. These revivals can not be sensational, it is held, since the external world is not influencing us with the appropriate stimuli. For example, the yellow round thing may not be an orange after all, or, if it is, we may not be near enough to smell or bite it; or the light of the candle may be a light that fails.

Yet we expect the thing to taste like an orange; we expect the candle to light properly. And how can we do these things unless

we have images of taste and vision, with which to help out the present sensations and make up our percepts?

This seems, on the face of it, good argument. It has been deemed so secure that much systematic thought has been based upon it. It is sometimes called the application of an ideal content to reality—an English, *not* an American, definition of perceptual judgment.

Two cockneys, at the "Zoo" recently, were looking at a mysterious bird. "It's a heagle," said one. "Garn away," said the other, "it's a howl." "I beg your pardon, gentlemen," said the official in charge, "you are both wrong; it's an 'awk." If any one chooses to believe that either of these perspicuous persons went through the process of calling up images of past experience to aid his present sensations before he said, "heagle," "howl," and "'awk," I will not, for the moment, gainsay his belief. Probably, however, no one here would now maintain that position. It would be said that residua of past experiences, though fragmentary, inexact, and vague, had given rise to a something mental which, though it could not be "imaged," was an "idea" of some kind or, more grandiloquently, an "ideal content." Let me, for the present, admit this, noting the acquiescence to the proposition that there may be perception, accurate and inaccurate, prompt or hesitant, without imagery.

There is another difficulty in the way of the sensation plus image theory of perception, and that is the rapidity of perception as compared with the slowness of imagery. It is, I think, not disputed among persons accustomed to introspection that the images of past sensations, which are supposed to help out the present ones, come slowly flickering by, waxing and waning like a corps of ghosts, *after* we have classed the present instance, that is, *after we have perceived* the orange and the candle, *after we have applied* "our ideal content to reality."⁵

Still, all this might be admitted and yet a case might be made out for the use of imagery in perception.

It might, perhaps, be said that imageless persons are impatient people who draw bows at a venture. Images, like other spiritual beings, will not always strive with us, if we ignore them and hurry on without waiting for what they would teach us.

Nor, it might be said, ought we to draw any inferences from the mental processes of the London ornithologists referred to; they just guessed, except the keeper, and he had read the name on the ticket affixed to the cage.

⁵ Several persons thoroughly competent in introspection assure me that images arise in perception which synchronize with the perceptual judgment. I have found no one who asserts that they precede it.

And, then, a serious professional charge winds up the indictment. To the imageless ones, it is said, "If you were capable of proper introspection, you would find these images you say you are without, and see for yourselves how much they aid perception." They, however, say they are without them, and adhere to that statement.

V. *The Function of Images in Comparison and Memory.*—Whilst some persons assert that they have little or no imagery and others that their every process of thought is attended by it, there is a third class who have imagery when they try to, and not usually otherwise. One such person, Mr. F. N. Hales, in some work at Cambridge, which both Dr. Rivers and Mr. McDougall know more in detail than I do, tried to find out how far imagery helped him in accuracy of memory and comparison. He set himself to remember and classify a number of grays of varying intensity. One of these would be exposed, and he would, subsequently, from memory, identify it or place it in a series. Sometimes he would do this after calling up a visual image and holding it steadily before him; at other times he would do it without employing imagery. It is what Americans call a conservative conclusion to say that he was just as accurate without the intervention of images as with them.

Two observers, Dr. W. G. Smith and Miss S. C. M. Sowton, in some carefully conducted experiments related in the *British Journal of Psychology*, Vol. II., Part 2, May, 1907, have some pertinent remarks on the relation between imagery and comparison. The subjects observed standard or pattern lines and afterwards marked off, from given lines, lengths equal to those observed. They say:

"In the course of the experiments we were struck by the entire absence of an image or mental picture of the line during the determination of the length of the reproduced line: in this respect we can only, so far as our work goes, confirm the view, upheld by Schumann and others, that in the comparison which is involved in the judgment that two successive impressions are equal, or different, a *Gedächtniss* or *Vorstellungsbild* is not essential and is normally absent."

It may, perhaps, be added that one of the observers judged rapidly and decisively; the other was hesitating and oscillating; but in neither case was any imagery present.

In a recent paper in the JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS,* Professor Thorndike has described a definite test as to the influence of imagery on visual memory. A large class, 200 in number, of adult students were asked to classify themselves as visualizers on the Galton plan, working in accordance with the following instructions: "You are to think of your breakfast table this morning and consider carefully the picture that rises

* "On the Function of Visual Images," Vol. IV., p. 324.

before your mind's eye. You are then to write down your answers to the first three questions on the list, using Galton's scale." The questions were:

1. Is the image dull or fairly clear? Is its brightness comparable to that of the actual scene?
2. Are all the objects pretty well defined at the same time, or is the place of sharpest definition at any one moment more contracted than it is in a real scene?
3. Are the colors of the china, of the toast, bread-crust, mustard, meat, parsley, or whatever may have been on the table, quite distinct and natural?

The students, by reading Galton's descriptions of each grade or group, rated themselves in grades from one to ten. Professor Thorndike took those who rated themselves 1, 2, 3, 4, 5 as the upper division, and those rating themselves 8, 9, 10 for his lower division, as these contained, approximately, the upper and lower thirds of the class numerically.

This is not so imperfect a method as it may seem to us at first sight, since American students at Teachers College and elsewhere are what ours decidedly are not, namely, psychologically minded; and, though there are obvious difficulties in obtaining any very exact results on this plan, one could probably be fairly sure that the upper third were generally better provided with images than the lower third.

To all these students Professor Thorndike put a series of questions as to objects which they must have seen in the course of their daily lives. How many pillars are there on a certain front of Columbia Library? How does a well-known lecturer part his hair? Does he wear a stand-up or turned-down collar? The answers were marked, the results tabulated, and the best and worst thirds compared. I should, myself, have preferred to see a table showing individual marks for imaging and for the visual memory tests, but the Galton method does not lend itself to that. However, there seemed little doubt that the students, poor in visual imagery, remembered just as well as those whose imagery was abundant.

The experiment is so valuable and important that one wishes it were more conclusive than it is. There is, of course, this difficulty in accepting the answers to Professor Thorndike's questions as evidences of memory. One does not know whether these students had ever "seen" the pillars or the lecturer's collar at all, in any proper sense of the word "seen." We may infer that they must have had certain sense impressions; we can not be sure that these ever became either perceptions or sensations.

Making all necessary deductions, however, the general result of

the experiment seems to me noteworthy, and the whole scope and method of it very characteristic of Professor Thorndike, who usually tackles a psychological question in a way to excite general interest, and especially the interest of his students, who are prospective teachers of one kind or another. In England, we shall, doubtless, on this question as on many others, find our lecturers on educational method beginning to instruct our teachers to practise their pupils in visual imagery, just after psychologists have decided, if they do thus decide, that it is futile.

Perhaps a very brief reference to some recent experiments of my own with school children may be admissible. Certain designs were exposed to view for a minute or so. The boys were required to look fixedly without movement. The designs were removed, and then drawn by the pupils from memory. Errors were marked without reference to dexterity in drawing, and, on the basis of these marks, the boys were divided into two equal groups, *A* and *B*. Four weeks later some fresh designs were shown, group *B* being required to reproduce, after giving a minute or two to the formation of a visual image, whilst group *A* formed no images, but reproduced at once. The table of marks shows that the group *B* as a whole and the sections of which the group was composed were inferior in every case to group *A* and its corresponding sections.

One week later, without warning, and without again seeing the designs, groups *A* and *B* were tried in order to see how far the process of forgetfulness had gone. Group *B* was again allowed a minute or two before each drawing to make visual images: group *A* made no images. The result was that, whilst group *A* of 18 children made 631 errors, group *B* of 18 children made 633 errors. And that this result is not adventitious may be seen by comparing the corresponding sections into which the groups are divided. In other words, the process of mnemonic decay had gone equally far in both groups: the visualizing of group *B* was not helpful in prolonging the memory of form.

I will anticipate the obvious criticism as to whether all the boys of group *B* did make visual images, or could do so. During the last test these boys were asked, as they were seated with eyes closed and hands over their eyes, whether they could see a picture of the design. Fifteen unhesitatingly said they could, three said they could not; these latter may have meant only that they could not remember that particular design, but I do not think so, as they all drew something more or less like it.

Another obvious criticism is that I have taken for granted that the boys perceived the designs rightly, though all made some errors in remembering them. The point is well taken, but I incline to

think that these boys, consisting of the first class in a good school, did perceive rightly. However, if they did not, there is no reason to suppose that bad observation gave us more errors in one group than in the other.

Again, we can not be sure that no boy in group *A* was guided in his drawing by the presence of a visual image, but we can fairly argue that the instructions to the boys of group *B* to try to form mental pictures and the time allowed before each drawing for them to do so would give us, at least, a great preponderance of imagery in that group.

On the whole, it is difficult to resist the conclusion that the visual imagery was without influence in the mental preservation of the designs.

Table, showing groups *A* and *B* divided into corresponding sections, i. e., sections obtaining identical average marks in the preliminary test.

December 16. Marks for Preliminary Test. Number of Errors.	Number of Boys.	December 16. Preliminary Test. Average Number of Errors.	January 13. Average Number of Errors.	January 20. Average Number of Errors.
7, 8, 9	Group <i>A</i> 3	8.0	8.3	29.0
	Group <i>B</i> 3	8.0	12.3	24.0
10, 11, 12	Group <i>A</i> 3	11.0	16.3	31.6
	Group <i>B</i> 3	11.0	19.0	30.6
13	Group <i>A</i> 3	13.0	16.6	28.0
	Group <i>B</i> 3	13.0	18.3	34.0
14, 15	Group <i>A</i> 4	14.5	25.5	40.0
	Group <i>B</i> 4	14.5	29.5	41.2
16 to 24	Group <i>A</i> 5	18.6	30.8	41.0
	Group <i>B</i> 5	18.6	31.2	40.4

Group *A*, 18 in number, made 247 errors in the preliminary test of December 16, 1907, 380 errors in the test of immediate memory on January 13, 1908, and 631 errors in the test of continued memory on January 20, 1908.

Group *B*, 18 in number, made 247 errors in the preliminary test of December 16, 1907, 423 errors in the test of immediate memory on January 13, 1908, after time had been allowed for the formation of visual images, and 633 in the test of continued memory on January 20, 1908, again after time had been allowed for the formation of visual images.

We need not, however, wholly depend on such experiments as these. If we can get a friend, who is or is not a visualizer as we may require, we can by suitable questions extract much relevant information. An unusual advertisement was seen a week or two

ago by a lady and myself, "We don't keep Skipper Sardines, we sell them." "Where and when did you last see that?" she said. I mentioned a crossroad off the Worcester main road near Droitwich, at Easter, 1905. "What was the shop window like?" I told her. "Yes," she said, "I can see a picture of it." We seemed equally good at calling up details, at which the lady was surprised, because I could not see a mental picture of it, and she could. This is not conclusive, because my visual memory is a little better than hers, but I think it suggestive. Much of my information about visual images has been obtained from this lady, who has, however, at length, told me that she will be glad when I get some of my own.

VI. *The Function of Images in Voluntary Motion.*—Popular though the image has been as helping perception, as making comparison possible, and in assisting visual memory, all these uses sink into insignificance before its great function as the "cue" for voluntary motion.

When reading my first book on psychology, I was spending part of almost every day playing baseball (not the American game, but one more like rounders) with some schoolboys. Very complex contortions have to be made, when between bases, to avoid being hit by the ball; and especially in order not to assume an irrevocable position when, as was almost always the case, one or more feints were made before the ball was thrown at one. The speed of bodily adjustment required was very great. Many of these boys had never played the game before, and if they formed images of the movements they were going to make before they made them, and then, so to speak, actualized the images, all I can say is that they possessed images of a rapidity and minute exactitude such as, I believe, no one has ever claimed for normal persons. Professor Herkomer, a week or two ago, spoke of one or two painters who could paint from their visual images; but they, he said, trembled, as it were, on the verge of madness. But compare, for a moment, the difficulty of guiding your brush by a static image seated in a chair, and guiding your movements in a romping, exciting game by images of yourself performing actions which you have never done before, to escape a moving object which has never before tried to trick you in just that way. From that moment I doubted the image theory of voluntary movement and, though I had resolved never to write about anything but school children, a friendly challenge from the other side has induced me to break my resolution; hence this paper.

It has, of course, never been shown that persons whose imagery is abundant can learn new movements more quickly than others whose imagery is poor, but such a scheme looks reasonable enough

and provides us with something mental to work with. Such characteristics are all that can be asked of any psychological hypothesis so long as it only advances claims to consideration, but when, in the absence of verification by experiment, the hypothesis is asserted as a fact, those who hold different views are entitled to complain.

There is, however, one thing satisfactory about psychology nowadays; we have got to the stage in which, whatever our opinions, we are ready to put them to the proof by actual tests, or, at least, to let another fellow do it.

The best work I know dealing definitely with this point is that of Professor Woodworth in the recent memorial volume to Professor Garman, of Amherst. Perhaps I may be allowed to use some sentences from my own review of his work in *Mind* of July, 1907.

"He groups psychological opinion on this matter into two divisions; one, which holds that the direct 'cause' of a voluntary movement is always a kinesthetic image; another, which holds that any image of the results to be gained by the movement may constitute its 'cue.' With thirteen subjects, most of them practised in introspection under test conditions, he put these positions to the proof." He worked on the voluntary execution of familiar movements, such as those of opening the mouth, winking, flexing or separating the fingers, or of some simple movement with scissors or forceps. Sometimes choice was permitted, *e. g.*, a reaction to a sound was to be made with either hand. Most of the movements were purposely hesitant; some, however, were made promptly. "Nearly one half of the experiments, 128 in number, showed no imagery; the kinesthetic image was observed in only one fifth of the cases and only half of these showed adequate images, *i. e.*, images which were fair representations of the actual sensations of the movement."

Frequently, the subject was surprised by the contrast between the actual sensations of the movement and its anticipatory kinesthetic image. I want to ask here if we ought to be surprised, if the one is an image and the other a sensation. I suppose we ought, in the same sense as when we say, after visiting a place we had heard about, but had not seen, "That's not the place as I imagined it"; but certainly not in any other sense.

But, obviously, these familiar movements are just the ones in which, even if imagery were ever largely operative, we should expect, on the general principle of the lapsing of intermediate and transitive states, that it would have died down.

Bair, however, took a case of the acquisition of new movements and taught several persons to move their ears at will, and Professor

Woodworth made some experiments on himself in isolating the extension and flexion of the big toe from that of the other toes. Again, kinesthetic images did not seem necessary.

But these are endeavors to revive movements, the apparatus for which is in process of atrophy. They are movements out of the normal evolutionary track. Can they be regarded as typical of the acquisition of new voluntary movement?

Kirkpatrick and Trettien have given cases of children suddenly beginning to walk when stimulated by some object on which their attention was fixed. There was no appearance of attention to kinesthetic imagery in these cases. A swallow which had fallen out of a nest flew perfectly, so far as I could tell, when first let out of a very small cage in which I had put him, in order to watch this point. He certainly flew without the preliminary flutterings and little trials which he would otherwise have made from the edge of his nest. Cases like this seem to render the employment of the kinesthetic image unlikely.

But even these illustrations do not seem to me conclusive as to the learning of those movements which, without definite application and protracted effort, we should never make at all. Such movements are writing, playing at billiards, playing at golf. Walking, to man, and flying, to birds, come in time without practise. Moving our ears and separating our toes have gone from us. Are such movements properly comparable with those which we should never acquire and never should have acquired without deliberate forethought and practise?

I do not assert that images of the future movement are implied in that forethought, but I am not sure, by any means, that the case is, as yet, closed against them. It is just here that the next experiments need to be made.

VII. *Are Images Sensory?*—But though I am far from confident that images have no useful function in certain cases, I am fairly sure that their presence and value have been much overestimated. And this result I attribute partly to unsatisfactory analysis.

It is usual to include both "sensations" and "images" under the general description "sensory." Possibly we must do this, since we speak of visual sensation and visual imagery, of auditory sensation and auditory imagery, and so on; and, of course, sight and hearing are two of our senses. But the words "sensory" and "sensational" are dangerously alike, and we need to be most careful to distinguish images from sensations. One is apt to utter an impatient, "Of course," on hearing such an apparent truism.

An example or two may show, however, that the matter is not

quite so simple. "The water looks cool," we say. "Yes," runs the ordinary explanation, "we have frequently experienced coolness when we have touched things which look like that; so that, when we see water again, the visual sensation gives rise by association to the temperature image 'cool.'" But is it an image? "A man can hold a fire in his hand" while "thinking on the frosty Caucasus." And his hand will burn and his head will not freeze. But when we say, "The water looks cool," I venture to suggest that we feel the coolness in the same sense as we feel the appearance; one is as sensational as the other. If this analysis is correct, much experience that we have usually described as imagery will fall under the head of sensation.

Let me take another instance. Children, idiots, and some artists are said to be prone to colored hearing. This means that, whenever they hear certain sounds, these sounds give rise to certain images of color, which, as Professor Sully says, are so vivid that in certain cases they approximate to sense perceptions. (He probably means sensations.) How did these people learn these associations? Did they, for example, whenever they heard the note *C*, see something "red" and so, by constant experience, form one of Mill's "inseparable associations"? To ask the question is to answer it. Neither in the individual nor in the race can colored hearing be derived from the repeated conjunction in our perceptual experience of certain colors with certain sounds. Do these people imagine the colors or are they sensational? If we say that it is a question of imagery, this implies that, though not *experienced* in connection with the sound, the color is always imagined in connection with it. And this means, on the ordinary doctrine of sensory and ideational centers, a series of connections between the sensory center of one sense with the ideational center of another, without, apparently, at any time, any of these connections between the sensory centers of the two. If, however, we suppose that the color and sound sensory centers are not yet completely differentiated, if we suppose that colors and sounds are not yet altogether dissociated, we have an easier solution. "What has not been dissociated can not well be associated," says Professor Ward somewhere, and this seems to me appropriate here. One further question. From the psychological standpoint, which is that of the individual consciousness, are these colors like images or like sensations? They come when the sound comes, they go when it goes; they come abruptly, breaking in upon our trains of thought; they are not like images, hesitant, fluctuating, and largely dependent upon our effortful attention.

What, then, is the upshot? Again it is that something we call

imagination might better be described as sensation. We do not do this, because our psychology is overlaid with a metaphysic of copydom. The individualistic standpoint proper to psychology is deserted for a dualistic standpoint, in which emphasis is thrown on the external world. If, for instance, "red" is not there for everybody, when the note *C* is struck, it is said to be a product of imagination or, speaking more accurately, an image. A knowledge of the normal evolution of sensational change, even with an unchanged environment, will finally break down this habit of thought; but, at present, it is dominant. It swells still further and, I think, erroneously, the population of the realm of imagery.

"Yet, after all," I hear an objector say, impatient at this wire-drawn argument, "the image does not feel as the sensation feels. If it did, we could 'cloy the hungry edge of appetite with bare imagination of a feast.'"

It is precisely my argument that it does not; but that we have not, as it were, gone by our feelings; we have inferred images instead of having felt them.

There is one more case, a most important one, which Mr. McDougall deals with in his "Physiological Psychology," and which Professor Woodworth, though adversely criticizing, does not appear to have quite met.

I remember the thing best in learning billiards. "You try to form a unified kinesthetic percept," says Mr. McDougall, "of the positions you are taught to take up." (Some people would try much harder to get accurate visual percepts; but that is by the way.) But it is not clear whether the author thinks that one forms an image of that percept before one sets to work to take up those positions again. I incline to think he does; but he will correct me if I am in error. Now, for myself, so far as I can remember, after having, once or twice, been placed right, I started by myself putting my hand to form a bridge and holding my cue loosely with my fingers; and, if I was helped by any effect from previous kinesthetic impression, it was only in the feeling that now I had got it like last time. This, of course, is a stage of perceptual development which may be altogether prior to imagery. But it is for each trained observer to test the question for himself.

Try to image how some simple movements will feel or look; then do them, and ask yourself whether the sensations were what the image foreshadowed. And if the sensation seems to display the inadequacy of the prescient picture, if we can do what we intend, though not what we imaged, the case for the potency of the image seems weakened.

But the sensations, when they come, often do seem as if they were the actual filling-in of the image. Now I suggest that all those twitterings and twitchings which one feels when thinking about a movement one is going to make, and which are afterwards filled out, are not images, but sensations of incipient movement. Cut these away, and the great bulk of what people call their kinesthetic imagery will go by the board.

I have tried, with what success my audience must judge, to show that much that we are accustomed to call imagery is really sensational in character.

Do we never, on the other hand, confuse images and thoughts? Personally, I find it very helpful in psychological thinking to distinguish between "image" and "idea." The word "idea," I know, is very useful to the layman. He uses it with a width of signification which easily embraces image, judgment, ideal, conception, and he may also, if he is a bit of a philosopher, call his percepts "ideas" of things, which, in themselves, he can never know. The psychologist does it too. Even so careful a writer as Professor Woodworth⁷ sometimes uses the words "image," "idea," and "thought" as if they were interchangeable, and I own myself guilty of using "idea" for "image."

I should like to relinquish the word "idea," but its hold is too great, and there is no word which we could satisfactorily substitute. We can, however, use "image" when we mean image only, and could retain "idea" for imageless thought. Of course, the idea is often accompanied by the image, but it is other than the image and can subsist without it. "Thought" is too wide to use at all unless qualified as perceptual thought, conceptual thought, and so on.

I have very little hope of persuading any one to accept these limitations of terminology; but I put them forward to this Society in order to obtain opinions on the question.

May I make one further distinction, namely, that between imagery and imagination? The one may be strong, the other weak. A man's mind may be full of ideas, he may persistently follow "the light that never was on sea or land," but he may not be able to image it.

And I wish to guard also against the confusion of imagery with that kind of spatial location of imaginary objects which appears to be so profitable pedagogically. Indeed, "imaginary objects" imply too much, "schematic local symbolism" is perhaps better; but in either case there need be no images.

I do not, for one moment, expect to get any large measure of

⁷ "Garman Memorial Volume," pp. 352, 353.

assent for many of the positions advanced in this paper; my own views are not as clear and definite as when I began to prepare it. But if I have, in any way, helped to distinguish more definitely the "image" from "sensation" and from "thought," and if I have shown that its current application is too wide and its potency overestimated, I shall be more than satisfied.

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THE POWER OF MUSIC

IF one were asked to differentiate between music and the other arts, he would naturally turn first to the medium in which it is expressed. But there are distinguishing characteristics of quantity as well as of quality. While the other arts may show them to some extent, with music they are attributes of preeminent importance. We refer to the universality of the appeal music makes to man, to its versatility, and to its power. By the first we mean that music can claim for itself a larger and a more appreciative audience than any other art. Under the widest possible differences of race, natural intelligence, and education, music is effective in its appeal to the human mind either to stimulate it to crude and passionate reactions or, at the other extreme, to awaken the purest and strongest esthetic emotions. True, the character of the music appreciated varies with the different degrees of education and civilization to which the individual or the race has attained, but only seldom, if ever, do we find a person not susceptible to some element of music, to simple melody or to rhythm.

By versatility we mean the unique power music possesses to stimulate emotions of the most striking differences of mental coloring and bodily reactions. It can arouse enthusiasm, stifle bodily fatigue, instil courage and endurance, animate the mind with gayety, or calm it to religious worship and prayerful meditation. Whatever the emotion, whether of joy or of grief, of excitement or repose, of comedy or of tragedy, music has a note to deepen the feeling of sadness or to heighten the touch of joy. No other art can appeal to such an extended range of human emotions and touch them all with such a magical hand.

The third attribute of this, the strangest and most subtle of the arts, is its power. Not only does music appeal to the human mind widely, but it appeals everywhere strongly. No other art, with the possible exception of literature, can make the emotions so poignantly

real or so effectively oppose the dominance of some controlling mood. Upon this attribute of music the world has remarked, and, perchance, reflected, since the days when David took his harp to solace the heart of Saul, and the Greeks repeated the mythical story of Orpheus, how by his music he charmed the hearts of man and beast.

Yet while these attributes of the musical art have not escaped the notice of the world, but have been abundantly recognized and remarked upon by men of poetic, and of scientific, and of philosophic vision, but little—astonishingly little—has been done to explain them. Musical esthetics is, at the present time, not only the most obscure, but also the least developed subject in all the philosophy of art. To give an adequate explanation to the facts to which we have referred requires a more thorough psychological analysis of music and a more philosophical examination of the facts thus gained than has yet been made. However, pending this scholarly desideratum, we may remark upon these points with perhaps something gained toward an ultimate explanation. Let us state a little more definitely just what we mean by the power of music.

When we speak of the power of music, we mean that it has a way of forcing itself upon our attention as no other art has. It impresses itself upon our minds, so that we must give it audience and listen to its message. There are two ways in which this unique power of music manifests itself. In the first place, music is sensuously more impressive, more insistent, than any other art. Again, no other art, with the possible exception of literature as exemplified in the drama and the novel, takes hold so firmly of our emotional nature or stirs so deeply the nether strata of this side of consciousness. Can definite and plausible reasons for these facts be given?

There are three points we wish to present as throwing light upon the attribute upon which we have last commented. They are these: (1) The biological significance of sound, the medium through which music is expressed, (2) the organic character of rhythm, and (3) the dynamic character of the various elements of musical symbolism. Let us amplify these points in order.

As an art music gains greatly in impressiveness and in power by reason of the fact that it has for its medium of expression that sense stimulus which both psychologists and biologists are telling us is most intimately connected with the emotional life. An Italian psychologist only recently, seeking for an explanation of the close relationship between music and the emotions, has advanced the theory that the fibers of the auditory nerve are interlaced with the fibers of the pneumogastric nerve, connecting the emotions in this way with sound stimuli through the functioning of the vital organs.

Whether or not the theory be true, the fact which the hypothesis was meant to explain can not well be denied. Of this experience well assures us.

Biologists, too, impressed with this fact, from the time of Darwin and Spencer have not ceased to remind us, some in one way, some in another, that sound is the most natural and most effective way of expressing and communicating the emotions, and is, therefore, the most exciting form of sense stimulus. Spencer's theory of music, it will be remembered, is that music is but a development from the emotional outcries of our primitive ancestors. Here, again, we will leave the theorist to his theories, to work them out as best he can; it will suffice in this connection if we recognize the fact their theories are meant to explain, viz., that sound as sound is the most effective stimulus emotionally carried to the brain from any of its organs of perception. Common experience can here be appealed to also: the moans of a sufferer excite our sympathy and pity as his emaciated form will not; animals habitually silent in extremities of suffering or of distress give utterance to cries of the most intense expressiveness; animals as well as men habitually communicate various emotional states through tonal inflection or intonation. As a consequence, sound qualities have become indissolubly associated with emotional states, and have come to be the most exciting, that is, the most impressive, stimulus of sense. This natural impressiveness of sound, instilled and fixed in us by ages of development in which considerations of life and death were involved, is carried over from the realm of crude emotional outcries to the realm of music, and there functions with undiminished vitality. Here it manifests itself by giving to the mere sound qualities of music, harmonic factors such as harmony and discord and dissonance, the major and minor modes, timbre, and modifications of tempo and force, an influence over the mind almost hypnotic in its directness and power.

In mentioning the organic character of rhythm as one of the causes for the peculiar power which music exerts over the human mind, we do so to call attention to the fact that rhythm is primarily of the body, not of the mind. So far as we can now see, it is due to the metabolism, purely physiological changes, of the nerve cells. The accumulation of energy here is approximately uniform, while the nervous discharge is essentially explosive, a certain potential being required before the nerve impulse can overcome the internal resistance of the nerve tracts. Under such conditions the nervous discharge must necessarily be periodic or rhythmical.

If we accept this theory of rhythm, it follows that rhythm or susceptibility to rhythmic stimulation has become ingrained in the

very heart of that most vital of all vital substances, the nervous system, and functions there with all the compelling force of an instinct. This means much when translated into terms of impellent force or inherent power, for in proportion as an act is instinctive, that is, without consciousness of the end to be attained, the driving impulse, the *vis a tergo*, must be the stronger. By means of education and discipline man may place rational motives, high conscious purposes, over natural instincts, but in themselves and without years of training instincts would determine the activities of man as well as of animals. The impulse to play in the child is normally stronger than the impulse to do his tasks; the desire for wealth, the acquisitive instinct, even in spite of training is sometimes stronger than the cultivated habit of social regard. Education is easy just so far as we can take advantage of instincts to help us toward the desired end, and difficult just so far as we must oppose instincts which, having served their purpose, tend either to function still from their native strength or, having become half crystallized, to function as habits. Rhythm being organic, that is, inherent in the functional activity of the nervous system, possesses the force and clamant strength of instinctive activities. It may be blind, unreflective, and instinctive, but it is clamant, and intense, and strong.

As an element in music giving strength to the mental reaction music produces, it may be seen both in the crude, but intense, response of the primitive man to his rhythmic music and in the keen appreciation of the devotee to our best compositions. In the first case we see it in the war-dance, where the dancers are wrought up to an emotional intoxication or frenzy by the strongly accented and rapid rhythm of the drum or other instrument of percussion; at the other extreme it is exemplified in the characteristic response, refined and subdued, but nevertheless direct and full of power, given to modifications of rhythm and tempo in the different *movements* of our higher musical forms. Between these extremes it functions in various ways, but always, though it may be utilized as an intellectual factor, with a rich and instinctive emotional concomitant.

Our third point is psychological, and in order that its real significance may be appreciated it must be interpreted from that point of view. As it was stated, it affirmed that music gains in power because its elements and the symbolism it uses are inherently dynamic in character. Wagner evidently had adumbrations of this truth when, following the lead of Schopenhauer's philosophy, he affirmed that music was a direct expression of the universal will. Aristotle, also, much earlier must have partially realized the same truth when he asserted that music imitates most closely the inner

life of the emotions. The truth, therefore, is of ancient lineage, though for all of that it has never yet been very clearly formulated. Let us see just what it means and what it implies.

If we pause for a moment to enumerate what we have called the sense or impressive qualities of music, we shall see very readily how strong in them is the dynamic factor. Rhythm and tempo and modifications of force are surcharged with movement and energy, while even the more static elements timbre and harmony are so intimately bound up with the melodic or harmonic progression (note the word) that they, too, are deeply fraught with the same quality. We shall appreciate this fact better, perhaps, if we contrast with it the symbolism in which other art ideas are expressed.

The purpose of the artist, for example, is to choose some critical moment in the experience of his characters and to crystallize this moment for us in such a way that the sense qualities are pleasing and the thought content is significant. But in all the various forms of this art, in landscape, in portraiture, in genre painting, there is the total absence of this dynamic quality in the sense stimulus. In this sense painting is all "still life." It is true that in painting we find figures representing motion and expressive of the utmost activity and effort, but even in these there is wanting that real movement and action in the sense stimulus which we have seen is characteristic of all music. In Millet's "Sower," for example, the figure is replete with energy and action, but the effect of such a representation is, in intensity, distinctly below the effect of strong rhythm or modifications of force or tempo. When the artist has done all in his power, the feeling of energy and movement is still inferential, not a direct datum of sense. In this art there are only quiescent figures, unchanging color forms. Considered as sensible forms, the representations of this art are static; and the emotions are aroused, not by the close analogy between the character of the sense factors and the natural life of the emotions, but chiefly through an appreciation of the thought content. A painting from its very nature tends to keep the emotion aroused upon one unchanging plane rather than to develop it up to a climax; once I comprehend the artist's thought an appreciate his technique, there is nothing in the stimulus itself to carry on the emotional consciousness to a richer, fuller life. On the other hand, the emotions which have been aroused tend at once, by a well-recognized psychological law, to fade away because of the necessary monotony of the stimulus. It is true that through association the representation may be so enriched that the emotions will be carried on to a full and a very rich reaction. The point we wish to emphasize is not that such works of art do not stimulate the emo-

tions, but that they do not do it so directly as music; in the first case it is done principally through the thought expressed rather than by any dynamic suggestion in the sense stimulus employed.

Literature, on the other hand, well confirms our point as a positive example of the principles which give music its power. As Lessing long ago pointed out, literature is peculiarly adapted to express ideas in which there is development at successive mental states. Literature, therefore, ranks with music as an art adapted to carry the mind up to emotional climaxes, as, for example, in the drama or the novel. By means of conceptual representations presented in panoramic succession, that is, by the concrete imagery of language pictures or by certain types of thought, the emotions are awakened and stimulated and carried on to maximum degrees of intensity familiarly known as climaxes. It, like music, takes a deep hold upon the mind, therefore, because it conforms to the natural functioning of the emotional consciousness. But even as compared with literature the musical art in this respect stands superior. This dynamic similarity to the play of feeling, in music, extends down beyond the thought content even to the elements of its sensuous expression. In these sensuous elements themselves such as we have mentioned, as well as in the ideal content of music, we have an analogy, a dynamic similarity, to the emotions which, being sensuous, goes far to explain the clamant character and hypnotic power of this art.

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REVIEWS AND ABSTRACTS OF LITERATURE

Ralph Waldo Emerson: sa vie et son œuvre. Avec 3 phototypies hors texte. M. DUGARD. Paris: Armand Colin. 1907. Pp. 418.

A really notable contribution to the philosophy and teachings of Emerson by an able French teacher and writer is certain to interest the American followers of the sage of Concord. Mlle. Dugard is the author of several important books on philosophy and education, and she is a valued contributor to the best French reviews. Her study of American life and character ("*La société américaine*"), published more than a dozen years ago, brought her name favorably before our people.

Two chapters are devoted to Emerson as a man, one to his life, and one to his character and spirit; a chapter to his general ideas; a chapter to his view-points of the individual life as brought out in the essay on "Self-Reliance"; a chapter on the domestic life, in which Emerson's views on marriage and friendship are discussed; the fifth chapter notes Emerson's contributions to the discussion of social problems; the sixth,

his philosophy of religion; and the seventh, the nature of his genius as a thinker and the range of his influence as a philosopher and teacher.

The spiritual influence of the character and writings of Emerson is strongly emphasized. Mlle. Dugard regards the idealism of Emerson as one of the most potent contributions of America to modern thought. In this she likens him to Plato; and like the great Greek philosopher, she believes that he is one of the few great writers to whom future teachers will continue to revert for inspiration and direction. Emerson's strong individualism is emphasized and his great influence in this direction on the best tendencies of American civilization.

While recognizing the detached character of his forms of thought, she holds that he is eminently consistent as a thinker and that apparent contradictions are mere matters of interpretation. His foreshortened esthetic sense, and particularly his lack of interest in music and his deficiency of emotional warmth, are critically discussed and deplored. It may well be asked whether the author has made as careful a study of Emerson's poetry as she has of his essays. Surely the poems teem with the highest emotional reactions.

Students of philosophy and education in America owe a large debt of gratitude to Mlle. Dugard for this scholarly and exhaustive study of one of our first spiritual teachers. Her work has been carefully done, and shows not only intimate acquaintance with Emerson's writings, but familiarity with the entire field of American history and letters.

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The Raccoon: A Study in Animal Intelligence. H. B. DAVIS. *American Journal of Psychology*, October, 1907. Pp. 447-489.

The paper consists of two parts: (1) general observations of the habits and instincts of adult raccoons, and (2) an account of experimental work. The results of the latter portion only can be reviewed here.

The animals were allowed to unlatch the fastened door of a box, enter it and get food. Single fastenings, a "group" of two buttons, the same plus a vertical gate-hook, and, finally, two combination locks, each constructed of four of the previously learned single fastenings, were used. The combination locks demanded that their elements be operated in a fixed order.

Though no names (save imitation) for the animals' methods of learning are employed, the general impression given the reader is that Thorndike's experiments with cats have been confirmed in detail and that the raccoon's learning conforms to the trial and error type. Chiefly effective in conveying this impression are the following conclusions: The experiments show variety of attack at first and a single stereotyped method at the last for each animal. "The perfecting of the power of undoing fastenings is accomplished by a slow series of small changes consisting chiefly in the omission of unnecessary movements and the combination of

those required. Experience with former fastenings holds over in the case of new ones, leading the animal, at least in certain cases, to begin his attack at the place on the surface of the food box where he has been accustomed to work. (This has been found by Thorndike in the case of cats, but denied by Cole for raccoons)" (p. 486). Elsewhere the method of working the latches is described as a "tendency to the formation of a 'short circuit' by the elimination of useless movements." These conclusions are confirmed by the facts that no clear cases of imitation were found and that the deliberate behavior of the older raccoons corresponds with that of older cats. Add to this the facts that no tests of putting the animal through an act were made (no evidence appears that the animals could be handled at all by the experimenter) and that, as the experiments were arranged, an act was always, objectively at least, a necessary element of the association, and we see how forcibly the impression of trial and error learning is conveyed to the reader.

Consideration of the further results of the paper may indicate, however, that the trial and error learning did not occur theoretically pure. For "the learning curve for the raccoon follows closely the type of those found for the higher animals and *for man*" (p. 477). The latter fact was proved by giving combinations 1 and 2 to boys and girls to learn and plotting the curve. And the "curves for raccoons and for Kinnaman's monkeys seem to show a *nearly equal facility* in learning to undo fastenings." As this rate of learning is very different from that of cats, it deserves further comparison. Were the raccoons hungrier than the cats similarly tested? No, they were moderately hungry (pp. 463 and 465); the cats were "utterly" so (Thorndike, p. 6). Which animals are physically quicker? This is like asking which is physically quicker, a tiger or a bear? The rapidity of the learning discovered seems, therefore, partly a mental affair. Or, if not partly mental, then the raccoons learned by the method of the cats, which possibly have "*no images or memories at all*" (Thorndike, p. 73), nearly as rapidly as monkeys which exhibit "at least a low form of general notion" (Kinnaman, p. 148). Not only this, but Mr. Davis has most carefully shown "that the order of procedure in working the combination locks was perfected before the amount of effort necessary was fully learned" (p. 486). Hence the raccoon learns "order" and "amount of effort" at two somewhat different rates in the same experiment. No doubt this may be due merely to the structure of the locking device. Had it been less difficult the manipulation might possibly have been perfected first and the order second, but even in that case the two rates would indicate that the learning was a complex, not a simple, process. It seems that with this experiment Mr. Davis has opened a field worthy of further investigation. Finally, the raccoons seemed to reach a sort of "*generalized manner of procedure*" which enabled them to deal more promptly with any new fastening, and there was an evident ability to respond to small differences in complex relations.

¹ Except in this case, the italics are the reviewer's.

The first of these groups of facts shows, then, that the raccoons learned by trial and error, while the second may indicate to the careful reader that some other factor also was present.

During the short periods of no practise the raccoons showed a gain in the facility with which they operated latches. This observation seems, to the reader, to be a neat laboratory verification of the remark quoted by James that "we learn to swim during the winter and to skate during the summer." Memory for combination locks was imperfect after a period of 286 days, but relearning was rapid.

One raccoon, having caught one of her toes between the vertical hook and the side of the food box, always thereafter released the hook with her nose. This interesting observation seems to support Yerkes's opinion that pain is, in some cases, a better stimulus than hunger.

An excellent table is given of the first forty trials of raccoon No. 1 with the single fastenings and groups. The generalized curves, however, are too much reduced and of the too common type which, if read accurately, must be copied on tracing paper and transferred to cross-section paper to determine the ordinates of any given trial. They readily give, however, a general notion of the time required for the learning process and show an interesting difference from monkeys, for which a like curve is given.

So far the experiments with fastenings. Experiments made to test the color perception of the raccoons seemed to indicate that they did not discriminate colors as such, but depended on differences in brightness alone for their successful reactions. The tables given tend to confirm this opinion or to show at least that discriminations of brightness are considerably easier for the animals to make than discriminations of colors.

The method employed for these tests, however, is open to serious criticism, for, with the first piece of apparatus used, the raccoons could both look into and reach into the vessel which contained the food and into the five similar vessels which were empty. The experimenter must have felt this disadvantage, for the second piece of apparatus "*did not allow the animal to look into the container in which the food was placed*" (p. 479), but the food could be secured by reaching through an opening 2" by 1½" in the vertical slides. The food was placed "under" one color, and when this was moved to a new position every other color was given a new position also. Thus with the second testing device each container could be explored by touch. If the animal reached into a no-food vessel, an error of color discrimination was recorded against him. There seems, thus, no means of distinguishing true errors of color discrimination from the cases in which the animal paid no attention to the colors at all, except that brightness tests gave better results than color tests. "The two pieces of apparatus were used indifferently."

The first piece of apparatus is almost identical with that used by Kinnaman with monkeys. The reviewer has used this apparatus with raccoons, and found that apparently they *could not pass a single food container without both reaching into it and looking into it*. Instead the

animal would go to one end of the row of vessels, explore the first one carefully by both touch and sight, then the next, and so on until the vessel with food in it was found, and then go on in the same way to the end of the row and then back again, rarely skipping a single vessel. Adult animals, such as Mr. Davis describes, skip more of the vessels, for one was considerably *above chance* in the color tests, and instead of 17 per cent. (chance) the brightness tests gave an average of 52 per cent. of right choices, while the best record of thirty brightness tests gave 96 per cent. of right choices. This marked difference between the average and the ability of one animal as shown by his best record may, perhaps, indicate the presence of a factor tending steadily to reduce the average of right choices, especially since brightness discriminations are not very difficult for the raccoon to make. However this may be, the raccoon has a strong instinctive impulse to investigate every opening by both touch and sight. Any one who has seen a hungry raccoon stop working for food to explore the trainer's pocket, and finally have to be torn away from it by force, will understand how apparently overpowering is this impulse to explore all openings by touch. One's cuff, foot of trousers leg, pockets, half unbuttoned coat, and all the feeding vessels were fatal provocatives of this reaction. Many mistakes in selecting the food container occur, therefore, because the animal can hardly pass by any container without exploring it. Since there is no difficulty in arranging apparatus so that the animal must select the vessel before he can either look into or reach into it, the influence of instinct in making the tests inconclusive could have been eliminated. Yerkes has shown, in the case of the crab, that a test which runs counter to a strong instinctive impulse is unsatisfactory.

No certain cases of imitation of one raccoon by another were observed, and while such cases "remain few and uncertain, we may well entertain reserve as to those where the raccoon seems to imitate the experimenter." Cole's explanation of such acts by raccoons is criticized and another proposed in which "accident," "inveterate impulse" (the instinctive impulse to claw at loose objects, we must suppose), and "association" are the words which are made to share, perhaps equally, in bearing the burden. To which it may be briefly replied that accident it was not, that the raccoon certainly has such an instinct, but the reaction in question is not an example of it, and that "association" is quite probably the proper word—but association of what? Since Thorndike's word "association" may be said to be, psychologically, a noun which requires an object. Used in the abstract the term explains nothing, but since association of a visual with a gustatory image is denied, the term, as used by Mr. Davis, must mean association of a motor impulse with a given situation, "stamped in" by trial and error alone. This explanation will not account for Cole's results since an *act* was not a necessary element of the association, but was merely a test of the presence of an association already formed, an association, too, between sensory impressions or images of sensory impressions.

When a bolt at the left of the door of the food box was removed

raccoon No. 5 "nearly wore himself out trying to push something from the place where nothing was present" (p. 467). In his scramble to do this he assumed the position of standing on his head, from the fourth to the eighth trial. Cole is quoted as saying that his raccoons "did not paw at the place where the loop had been nor did they claw at the loop or button when the door was open." On the evidence of the behavior of this raccoon No. 5, therefore, Cole's results are denominated as "*exceptional*." The answer to this criticism is arithmetical. Cole's animals did claw at the side of the door where a latch had been *exactly six times* (Cole, p. 218). Now compare this number, six, with the thousands of trials in which no such thing occurred. What is the ratio? Or which is the exception and which the rule? Truly it is a startling experience to see a raccoon stand on its head, even four times. Yet the vividness of the experience must not be allowed to blind us to the evidence of our numerical records. Otherwise anecdotes would be as valuable as recorded tests in animal psychology.

Mr. Davis secured one animal which was blind, or nearly so. It is to be hoped that the sense of touch will be carefully tested in this animal for the opportunity is unique, and in this case no cruelty can be charged in blinding the animal.

It seems to the reviewer that in attributing to the raccoon a nearly equal facility with the monkey in learning to operate fastenings, the former animal is rated considerably too high. For Mr. Davis included in the recorded time only "the entire period during which the animal was in contact with the locking device" (p. 465), while Kinnaman counted the time "no matter whether the monkey was before or behind the box, whether prancing around it or jumping up and down on top of it, so long as he was trying to open it. Some of these efforts were in nowise directed toward the latch" (Kinnaman, p. 115).

Though all the raccoons tested by Mr. Davis were fully grown, or nearly so, he found considerable difference in the behavior of the younger and older individuals.

Notwithstanding differences of opinion as to the interpretation of results, which differences seem inevitable and which future experiments will settle, Mr. Davis has given us a valuable and permanent contribution to the data of comparative psychology. With indomitable purpose he has overcome most serious difficulties both in securing raccoons and in carrying out the experimental tests. In addition to the immediate value of his results, they should attract other workers to investigate the problems which he has shown to be worthy of further study.

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JOURNALS AND NEW BOOKS

RIVISTA FILOSOFICA. January-February, 1908. *Il nuovo individualismo religioso* (pp. 1-27): N. FORNELL. - In contrast to tendency toward social control, there is the disposition to leave religion more and more to the individual. Yet organization here might be effective. It is made difficult by the indifference of ignorance and the indifference of culture. *La coscienza negli animali* (pp. 28-51): A. FAGGI. - A discussion of theories of Loeb. To ask whether an animal has consciousness is to ask whether it has the mechanism required for associative memory. Exception is taken to Loeb's declaration that consciousness is merely a metaphysical concept without scientific justification. *La psicologia della esperienza indifferenziata di James Ward* (pp. 52-83): A. LEVI. - An account of the psychological theories of Ward, which are hardly known in Italy. (To be continued.) *Un trattato elementare di filosofia indiana* (pp. 84-109): L. SWALL. - A translation for the first time of the "Tarkâmrita," with an account of its position in Indian philosophy. (To be continued.) *Vita morale e vita sociale* (pp. 110-128): E. MORSELL. - (Continued.) Morality has evolved from primitive uniformity to individual diversity. One of the most important philosophical problems is that of the relation between moral consciousness and moral philosophy, between which there is the contrast as between art itself and the philosophy of art, to use Rhiel's comparison. *La dottrina della proprietà nel Montesquieu* (pp. 129-135): R. MONDOLFO. - The concepts of property and liberty become practically identical when regarded as proceeding from the idea of personality. Their identification was natural under social conditions of the eighteenth century, and it is remarkable that Montesquieu ("Esprit des lois," XV. and XVI.) puts them in opposition. The opposition results from theory of social contract. *Articoli di riviste straniere. Notizie e pubblicazioni. Per Roberto Ardigò. Sommari delle riviste straniere. Libri ricevuti.*

Bloch, Leon. *La philosophie de Newton*. Paris: Felix Alcan. 1908. Pp. 643. 10 fr.

Ewald, Oscar. *Kants kritischer Idealismus als Grundlage von Erkenntnistheorie und Ethik*. Berlin: Ernst Hofmann & Co. 1908. Pp. ix + 314.

Gaultier, Paul. *L'idéal moderne*. Paris: Hachette & Cie. 1908. Pp. 355.

Robin, Leon. *La théorie platonicienne des idées et des nombres d'après Aristote*. Étude historique et critique. Paris: Felix Alcan. 1908. Pp. xvii + 702. 12 fr. 50.

Ross, Edward Alsworth. *Social Psychology*. New York: The Macmillan Co. 1908. Pp. xvi + 372. \$1.50.

Störriing, Gustav. *Mental Pathology and Normal Psychology*. Translated by Thomas Loveday. London: Swan, Sonnenschein & Co. 1908. Pp. 298.

NOTES AND NEWS

PROFESSOR A. C. ARMSTRONG, of Wesleyan University, contributes to the June issue of the *Educational Review* an article entitled "A Neglected Discipline." It is a suggestive plea for courses in the history of intellectual progress. "The stages in the advance of mind are counted turning-points in history, and the principles developed in them the foundations on which the edifice of later reflection must be based. The modern state, the new religion, educational reform, social betterment, larger views of duty and of conduct,—all are held dependent on conclusions to which the slow progress of the human spirit has led up. And yet by the great majority these fundamental conditions of civilized existence are less often made the subject of systematic reflection than of incidental reference. By the method of critical inquiry we study other questions in all the various departments of knowledge. The principles of thought itself, and the course of its development, are often left without inquiry; because we take for granted that we understand them, each man or sect or party appealing to them as best may serve the moment's need. The neglect becomes the more remarkable when it is remembered that the modern university pays no more attention to this central discipline than is given to it by individual men. Laymen may be excused for accepting without examination the postulates of modern thought as they are borne in on them by the spirit of the time. Scholars, on the contrary, may fairly be expected to consider the principles on which thought proceeds, and the elements in their reflection which they receive by the inheritance of birth and training. And by scholars this reasonable expectation is in part, if only partially and incompletely, met. But the responsibility of either class is less by far than the obligation of those highest teaching bodies whose function it is at once to inform and to direct the mind, to bring it into living touch with the work which the thought of the past has accomplished, to guide it in its task of making contribution to the solution of the problems still before the world."

THE editor of the *Revue de philosophie* invites, in the May issue, discussion of the problem of knowledge. It is interesting to note that, apart from the general importance of the problem, he finds special reasons for its timeliness in the controversies aroused by pragmatism and by the modernist movement in the Roman Catholic Church. "Les modernistes," he states, "s'appuient sur une théorie de la connaissance. L'Eglise leur dit qu'elle est fausse, ils répliquent qu'elle est vraie. Inconciliable avec la religion catholique, aux yeux du chef même de cette religion, le pragmatisme est encore inconciliable, d'après M. Poincaré, avec la science."

AT a recent meeting of the Board of Directors of Washington University, St. Louis, Dr. Charles E. Cory, who has been acting assistant professor of philosophy during the current year, was put in charge of the department of philosophy.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

ENERGY AND REALITY.¹

I. IS EXPERIENCE SELF-SUPPORTING?

THE story of the concept of being is a long one and constitutes pretty much the whole story of philosophy. But whatever may be our opinion of *Urstoff*, upon one thing we are now agreed, that experience stuff, as revealed in our immediate feelings and sensations, on the one hand, and our ideal construction, on the other, must be the starting-point of all our investigations. In terms of this we must differentiate and express the problems of the universe in so far as they can be expressed. But is reality through and through experience?

It has been maintained from time to time, and recently by so brilliant an advocate as Professor James, that experience is self-sufficient; that it "leans on nothing but itself"; and that we have no need, therefore, of any reference outside of experience. If we examine the problems of experience more closely, however, we shall find that experience in many ways seems to depend upon an extra-experiential constitution. I shall mention a few cases in which experience implies such a constitution.

For one thing, experience does not account for its own continuity, either as involved in intersubjective relations in space or as involved in bridging over from moment to moment in time. To speak of the former continuity first: In order for two egos or subjects to come to an understanding with each other, or to communicate their feelings and ideas by means of "winged words," something more is necessary than their respective fields of consciousness. Certain processes must be interpolated, such as physiological movements on the part of the speaker, air-waves which take up these movements, and end-organs, with a nervous system, reacting to these

¹ This paper is the fifth and last in a series of studies on the attributes of reality. The first study appeared as a monograph, entitled "Time and Reality," *Psychological Review, Monograph Series*, No. 26, 1904; "Space and Reality," this JOURNAL, Vol. III., pp. 533, 589; "The Ought and Reality," *International Journal of Ethics*, Vol. XVII., p. 454; and "Consciousness and Reality," this JOURNAL, Vol. V., pp. 169, 225.

stimuli on the part of the listener. Now these intermediary processes can not be regarded as experience in their own right. Unless we go back to the breathing world of Anaximenes we would not be likely to regard air-waves as themselves experience. Even the immediatist, unless he is a solipsist, would have to admit that other people's immediacy is not his immediacy, but is communicated by the help of intermediary processes. This would be true even of a telepathic hypothesis. How it is possible, by means of such non-conscious intermediaries, for conscious egos to meet in a common world, we can not discuss here.

But, in the second place, we can not account for the continuity of experience in time, any more than in space, as leaning upon anything but experience. To use Professor James's illustration: Peter and Paul go to sleep in the same bed; and while not conscious in the meantime, so far as evidence proves, each one, on waking, is immediately conscious of his own past, and one does not get mixed up with the other. Such continuity between our waking moments, bridging over the intervals of experience, must require something besides experience. The reason that experience in waking up connects with experience before going to sleep is that both lean upon a world of processes which is not experiential. The machinery of association, upon which living-over experience depends, is not itself experience. Nor could we invoke here a permanent experience as a solution of the problem; for the permanent experience surely could not account for the coming and going of experience as we know it. The same idea might be illustrated equally well with reference to social experience or the funded knowledge of the race. Clay tablets constituting libraries of ancient lore have been unearthed in recent years in the Orient. Were the ancient libraries of Nineveh and Babylon experience while buried in the ruins? Did they not rather become experience again, after thousands of years, when they were unearthed and deciphered by recent discoverers? Perhaps you would retort that they were possible experience in the meantime. But what does possible experience mean in such a case except that they were *not* experience until they became continuous, as perception and interpretation, with human beings who stumbled upon the libraries? The phrase "possible experience" only hides the problem; and it means anything when pressed home, it is that experience sometimes leans on processes that are not experience. Possible experience which is not experience, is no more experience than possible electricity, without all the conditions for electricity, is electricity. Whether within individual history, therefore, or within the history of the race, it is evident that, when you try to explain its continuity, experience leans upon an extra-experiential constitution.

What I have shown with reference to continuity might be shown equally well with reference to interest. Take, first, a case of primary interest. Why do brilliant things, moving things, loud things, things to suck, etc., fascinate the infant? Why does the chicken peck at certain things on the ground and shy away at certain movements, etc.? Not because of experience, surely, because it has no past experience to bank on. If we would find the explanation for such interest, we must go to biological structure and not to psychological association. We sum it up by saying that the child and the chicken are so constituted as to feel this way in the presence of such stimuli. Evidently experience leans upon what is not experience, as regards primary interest.

And if you take into account the more general demands or postulates that underlie psychological activities, they, too, seem to carry us beyond experience. Why is consistency pleasing and contradiction disagreeable to the cultured man? Why do certain forms and combinations of colors and of sounds stimulate him to appreciation and excite the feeling for the beautiful? Why do certain things provoke disgust and other things approval? Partly, no doubt, on account of experience; but if certain instinctive qualifications were lacking, or if the instinctive constitution were different, the same situations might produce entirely opposite feelings on the part of individual experience, as is exemplified even now in different races.

But not only is the woof of experience in the making thus conditioned by an instinctive warp which experience can not make or explain, but culture and meaning, the net result of experience and tendency, are funded in a way which, to a large extent at least, is unavailable as experience. Physiological tendency comes to do the work of memory. It is precious little that a man out of college twenty years, and engaged in new pursuits, can recall of his college curriculum. And yet he feels differently and acts differently because of his college course. Here, again, in the very definition of culture, we come upon a subtle relation to a reality which is not experience. The ego, therefore, whatever else it may be, is not merely a "bundle of perceptions" or of any other conscious states. They are not the whole story, at least.

Another road might have been chosen to show the insufficiency of experience as an account of reality. If we take the immediatist point of view, what reality can we accord to nature? Is nature merely a "bundle of perceptions"? We have already found such an account inadequate to the ego; on closer scrutiny we shall find it equally inadequate to nature. If we insist that the objects of nature are statable merely as our perceptions, we must be prepared

to answer several questions. Does reality consist merely in the perceptual differences that things *do* make, or does it also include the differences which they *can* or *will* make under other conditions than the present? But if we admit *will* and *can*, have we not admitted a larger constitution than experience? And, then, what about the constancies or uniformities in our perceptions, upon which all our expectancies or scientific laws are based? Is it part of perception that perceptions shall repeat themselves in certain describable and definite ways? But if perceptions do not exist in the meantime, it is hard to see how this uniformity or repetition can be a character of the perceptions. If *esse* is *percipi*, it is hard to see what reality there can be when there is no *percipi*. In the prediction of an eclipse a thousand years from now, or the reading of an eclipse a thousand years ago, there surely is no present perception of the fact; and absent perception is hardly perception. If there can be such a thing, then, as future perceptions or the reading off of past perceptions, experience must lean upon a non-experiential constitution.

But this is not the whole difficulty of the phenomenalist theory of nature. A deeper problem confronts us. Can an individual, whether conscious or unconscious, be resolved into relations? Can a thing be regarded as having merely an outside and no inside? By thus regarding it we shall, indeed, avoid the knotty problem of "the thing itself"; but is our account of reality fair and complete? Is a thing merely what it does, as Lotze and Plato's Eleatic Stranger tell us, waiving for the time being the difficulty of what it may do? In the case of one sort of thing at least, namely the purposive ego, we must admit that he is not merely what he does, his external continuities, in the sense of the perceptions he produces in us; but he is also something on his own account, a center of appreciation and willing. This is the real core of the ego, not the sight-touch-motor complex. The latter is the clothes, or part of them; and an individual consisting merely of clothes would be a funny sort of an individual. The ego, to use a good Hegelian distinction, must be something *für sich* and not merely *an sich*, something on its own account as well as something for others. If only purposive beings have an inside, is the baby merely an outside, merely clothes? It seems to have a core of feeling of its own, however crude. And what about animals? Are they merely an outside with no inside? No, they, too, seem to have a core of appetite and feeling which we must acknowledge. And while we know little about the simpler forms of nature, at least they are not merely fictions of ours. Our agreements about them are *forced* agreements; they are not created by convention: and we must learn to adjust ourselves to these simpler

realities in order to control them and realize our purposes. If we would keep dry in the rain-storm, we must bring our umbrella and other togs along. Approaching the problem, then, from the point of view of the will or our active purposes, we can not resolve reality, whether conscious or unconscious, into bundles of perception, or into experience of any form, altogether.

But how shall we conceive this extra-experiential constitution? Two important hypotheses have become classical, one that of independent and immutable substances, and the other that of the absolute. First, a word as regards the hypothesis of substances. The realistic substances may be material or spiritual; they may be the atoms of Democritus or the monads of Leibniz. It is quite wrong, then, to accuse the older realism of being materialistic. On the other hand, the substances which have counted in science have, until recent times at least, been of the extended or materialistic order. The monads of Leibniz and the qualities of Herbart have not counted in the development of science, interesting though they have been as metaphysical curiosities. The atomic theory of Democritus, adopted by modern chemistry and made exact through Berzelius's conception of weight proportions, has, on account of its convenience for modern science, come to stand for our ideal of realism.

In the older conception of atomic realism, the geometrical properties, depending upon extension, are the important ones; even after the idea of energy, in the sense of doing work, became a permanent concept in physical science, the concept of extension was long allowed to rank with the concept of energy. This gives rise to Herbert Spencer's antinomy as regards extension and force. This antinomy, however, is losing much of its relevancy by the fact that extension or mass is relegated to at least a second place in the scientific conception of physical nature.

If the physicists had consulted the philosophers and psychologists, they could have learned long ago that extension is a confused idea and has no reality outside of individual experience. Berkeley pointed out, with his psychological keenness, that the size of a thing varies with the distance and that the form varies with the angle of the perspective. He concluded, therefore, that matter could not be real. Modern psychology, with less of metaphysical interest, but with superior experimental tools, has likewise pointed out the relative character of extension. Thus it is shown that the extension seems longer when the intervening space is filled than when it is empty, whether you take tactual extension or visual extension. Where the area is too small for two points to be discriminated as two, they still have the feeling of a bigger point than either of the points previously discriminated. When a number of points are made

to stimulate the skin cells or the retinal cells successively, the extension seems larger than if the stimulation is simultaneous. Even as regards sound, we find an interesting relation between the rate of succession of physical stimuli and the sense of volume. Sounds succeeding each other at the rate of 1/500 of a second can not be discriminated as distinct sounds, and probably we can not here distinguish the duration of the successive from the simultaneous, but the successive feel bigger than the simultaneous. Not only the velocity of certain electric currents, therefore, but a certain velocity of nerve currents produces an apparent mass.

But modern physical science has been quite untouched by psychological investigation. What modern science has been concerned with has not been perceptual extension with varying conditions, but an artificial unit of extension or perception under standard conditions, as, for example, the steel-yard kept at a certain temperature and other uniform conditions in the British Museum. As long as this conventional unit could be applied under definite conditions, mass still maintained its hold as an ultimate attribute of physical reality. I say physical reality because the field of investigation, where mass units have been applied, has been narrowed down to this. Philosophy since Descartes has recognized that there is no sense in speaking of an extended will. However, even in physical science, serious doubts have arisen, though on experimental and not *a priori* grounds, as regards the reality of extension and even of weight. What has given rise to this doubt in recent science is the demonstration that neither mass nor even weight can be regarded as an absolute constant, and that, therefore, recourse must be had, for descriptive purposes, to a more ultimate concept. It has been shown by Lorentz that even mechanical mass in motion must vary with the electrodynamic field, and so is not constant. Mass, moreover, does not seem to apply with equal force to all energy: there seems to be little relevancy in speaking of electricity as having either mass or weight.

The greatest blow to the conception of mass has come from recent investigations into the nature of electricity. It has been shown that mass can actually be produced through velocity. Kaufmann, J. J. Thomson, and others have demonstrated "that if the velocity of a charged body is comparable with that of light, the mass of the body will increase with the velocity."² And not only that, but the experiments and calculations, according to Thomson, "support the view that the whole mass of these electrified particles arises from

² J. J. Thomson, "Electricity and Matter," p. 34.

their charge."³ As a number of brilliant physicists, including J. J. Thomson, Rutherford, Strutt, etc., take the view that the atom can be resolved into negative electric charges held together by positive electricity spread over a wider volume, it is only a short distance to the view that there is "no mass other than electrodynamic inertia. But, in this case, the mass can no longer be constant; it augments with the velocity and it depends on the direction, and a body maintained by a notable velocity will not oppose the same inertia to the forces which tend to deflect it from its route as to those which tend to exhilarate or to retard its progress."⁴

Such a theory, for mathematical reasons if for no other, will be slow in gaining acceptance among ordinary chemists; but it is not any the less interesting theoretically on that account. Possibly the seventy or eighty elements of modern chemistry may be simplified by means of such a theory, but of such a simplification we have only hints at present. The recurrent similarity in the geometrical groupings which free magnets spontaneously assume in an electromagnetic field as you increase their number, as shown by Mayer's experiments, furnishes a direct analogy to the periodic law of the chemical elements and to the recurrent characteristics of these elements as shown by spectral analysis. The positive or negative chargeability of various elements shows at least an intimate connection between them and electrical energy. This theory tries with wonderful plausibility to account alike for the stability of the ordinary chemical elements and the unstability of the radioactive substances; but its most interesting aspect to us is that, like the earlier metaphysical theories of Leibniz and Boscovich, it reduces mass to energetic terms. Thus in modern physical science we have passed from a physical world which is made up of mere geometrical figures enclosing extension, as in the case of the Cartesians, to one that is non-extended, or where extension is merely a secondary function of energy. How far this hypothesis can be adopted for all

* It is only fair to say that Thomson in more recent publications has modified his view. As I understand it, he does not now regard it proven that the sum of the apparent masses of the negative charges equals the total mass of the atom. There is a residuum of gravitational mass which must be accounted for in other ways. This is now a matter of controversy. But in any case the Cartesian idea of atoms as rigid, mathematical figures has been exploded. Both the shape and the magnitude of the atom vary with the velocity and the magnetic field. They can be changed by pressure. Energy, not mass, becomes, therefore, the primary physical reality. The atom, Thomson has shown, can be stated as the sum of its internal energy and the energy of translation.

³ M. H. Poincaré on "The Value of Science," *Popular Science Monthly*, Vol. LXX., p. 349. For the electrical theory of matter see the lucid exposition by Hon. R. J. Strutt, in his work entitled "The Becquerel Rays and the Properties of Radium," especially pp. 184-193.

physical purposes, convenience must decide. Whether it can be regarded also as an ultimate hypothesis holding good for the whole of reality, we shall discuss later.

The motive for inventing realistic substances was no doubt the need of accounting for the seemingly potential character of things, or, to express the same idea in other words, to meet the need of social expectancy. But it has always been difficult to make clear what potential means. Where are the manifestations of light and heat when they are not manifestations? Where is the storehouse of our ideas when we do not think of them? What does the potential mean excepting that one set of changes can, under certain conditions, give rise to another set of changes; that, perhaps, what is not experience can, under certain other conditions, give rise to experience? Thus chemical changes can give rise to electrical or nervous changes. Physical energy, as light rays, is possible light in the sense that physical energy may give rise to chemical changes in the retina and these again to nerve changes in the optic nerve and occipital lobes, and these changes again to psychic processes. Thus you have the sensation of light. But physical energy, as such, is neither potentially nor actually light; it is itself. The potential, therefore, does not need to mean the static; it simply means that one set of changes is the occasion for another set of changes under certain describable conditions. And that, failing these conditions, the changes do not take place. This is the meaning of the terms possible and impossible in nature.

The most consistent attempt to state the potential is that of Anaxagoras. According to him, the fruit of Demeter which we eat and the water which we drink must contain the germs of blood and tissue and bone and hair which they serve to build up. The reason that things can produce such different results in different combinations is that everything contains a portion of everything. It is only the proportion of the elements which varies and which determines the character of the particular thing. If pain is present in all stimuli of a great intensity, then it must really be a property of those stimuli at any intensity. On such a theory, as well as according to its more modern successor, the qualitative theory of Herbart, every effect can be said to be potentially present in the sense of actually existing in the conditions which give rise to it; and recent common-sense theories as to the reality of qualities seem to point in the same direction. The difficulty with all of these theories is that we have no evidence that the bright and the dark, the dry and the moist, the heavy and the light, or any other perceptual qualities exist until they appear under certain conditions. The potential, therefore, is merely a hypothetical statement of what effects will appear, given all the conditions or the definite complex.

The need for constancy or uniformity, however, does not require absolute uniformity or absolute constancy. After all, we have no right to assume any more constancy than we find. The chemical elements do, indeed, possess a high degree of constancy, excepting, perhaps, the more recently discovered ones, such as radium; and yet we have no right to assume that they are absolutely constant. When we come to the more plastic organic and psychological processes, constancy becomes much more relative. According to the pragmatic test, generally stated, there is just as much stability or substantiality as there seems to be or as we must acknowledge. What is the use of assuming a stability which can not be verified. No doubt Plato and Aristotle are right, that the "science of those things which are in a state of flux has no existence."⁵ But our world furnishes at least such a degree of uniformity as makes a reasonable adjustment to the future possible.

The weakness in the statement of the metaphysical realistic substances, which the idealistic critics have not been slow to point out, is that, inasmuch as these substances are independent and indifferent to the various combinations in which they enter, they can not account for the apparent processes, whether physical or perceptual. The material atoms become as useless to account for the physical changes as the soul substances become superfluous in accounting for the stream of conscious processes. The substances, in other words, must be known through their activity; and, therefore, activity, and not substance, becomes the fundamental thing; substances so called are a mere hypostatization of the relative uniformities and constancies, physical and psychological, which we observe.

The other venerable hypothesis which tries to furnish a setting for our finite experience and to account for its coming and going and its relativity, is that of absolute idealism. The history of this theory is easy enough to trace; and one can not help regretting that the unity of apperception of Kant, which merely emphasizes that the world is coherent if we are sane, should have been converted into a cosmic unity, a unity of nature, by Kant's successors. To them being strung on the unity of our social interests or purposes means that nature herself must be thus strung, must be an ontological and reflective whole. This theory has, indeed, done a great service in emphasizing a part of reality, neglected on the whole by the old realism, namely, that of ideals and institutions. Its insistence upon an ideal of systematic unity has had its great importance, too, as an ideal of knowledge. Even if reality can not be regarded as such a systematic unity of experience, the dream of science must be to weave together our human purposes and interests

⁵ Aristotle, "Metaphysics," Book XII., Chap. 4, § 3.

into such a unity. Epistemologically, therefore, the theory has done great service, whatever may be its one-sidedness. It has also fulfilled and will always fulfill an important religious function in many lives in which the esthetic and intellectual craving is more prominent than the ethical and practical.

But, in spite of the historical importance of this venerable hypothesis, it has striking weaknesses. It is not at all clear how an eternal and complete system of experience can account in any way for the coming and going, the tragedies and successes, of our experience. The absolute as an hypothesis fails as completely, and for the same reason, as the realistic substances in meeting the world of process; and we must go to work, therefore, independently of such an hypothesis, beautiful and esthetically satisfying as it may be, to meet the problems of our finite world of change.

Moreover, as Plato has long ago pointed out in the "Parmenides," not only could not such a system of ideals meet the problems of change, but the absolute could not know our finite world, nor could we know it. That we could not know it must seem apparent enough, for if we knew what an absolute experience is, we should already now possess such an absolute experience, as, indeed, the absolute idealists have not been slow to claim; but, even in that case, we, after all, know only what we know. The absolute itself becomes merely our construction or our definition of our finite experience; and we have failed to reach the permanent and eternal for which the absolute was supposed to stand. Our absolutes must vary with the growing insight of the individual and the race, with the evolutionary process of human experience.

If we can not know the absolute, neither can the absolute know us. It could not know our failures, our ignorance, and our despairs as these failures and ignorance and despairs are for us. The very fragmentariness of these human experiences from the absolute point of view would convert our despairs into hopes, our tragedies into comedies, and our failures into successes. Such an absolute, then, even if it existed, could not account for the world of change, with its adjustments and maladjustments and its different levels of appreciation. Like the realistic substances, it is a hypostatization and possesses all the relativity that the unity of finite human experience, which created it, must possess. That which explains process must manifest itself in the process, and, therefore, must itself be process. The meaning we can snatch from the flux of things possesses, indeed, a certain eternity while it lasts; it aids us to prepare for the future, as prophetic of the larger insight and the larger experience to come. But as for absolute permanence, we know this even less in the field of human experience than in the case of

chemical elements. The old static view of being, therefore, has given place to the view of dynamic processes, whether as regards the atoms of the physical sciences or the images and concepts of psychology. Being = energy.

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DISCUSSION

THE LOGICAL CHARACTER OF IDEAS

SAID John Stuart Mill: "To draw inferences has been said to be the great business of life. . . . It is the only occupation in which the mind never ceases to be engaged." If this be so, it seems a pity that Mill did not recognize that this business identifies what we mean when we say "mind." If he had recognized this, he would have cast the weight of his immense influence not only against the conception that mind is itself a substance, but also against the conception that it is a collection of existential states or attributes without any substance in which to inhere; and would thereby have done much to free logic from epistemological metaphysics. In any case, an account of intellectual operations and conditions from the standpoint of the role played and position occupied in the business of drawing inferences is a different sort of thing from that which regards them as having an existence *per se*, and which treats them as marking some sort of existential material distinct from the *things* which figure in inference-drawing. This latter type of treatment is that which underlies the psychology which itself has adopted uncritically the remnants of the metaphysics of soul substance: the idea of accidents without the substance.¹ This assumption from metaphysical psychology—the assumption of consciousness as an existent stuff or existent process—is then carried over into an examination of knowledge, so as to make the theory of knowledge not logic (an account of the ways in which valid inferences or conclusions from things to other things are made), but epistemology.

We have, therefore, the result (so unfortunate for logic) that logic is not free to go its own way, but is compromised by the assumption that knowledge goes on not in terms of things (I use

¹ This conception of "consciousness" as a sort of reduplicate world of things comes to us, I think, chiefly from Hume's conception that the "*mind* is nothing but a heap, a collection of different perceptions, united together by certain relations." "Treatise of Human Nature," Bk. I., Pt. IV., Section 2. For the evolution of this sort of notion out of the immaterial substance notion, see Bush, "A Factor in the Genesis of Idealism," in the *James Festschrift*.

"things" in the broadest sense, as equalling *res*, and covering affairs, concerns, acts, as well as "things" in the narrower sense), but in terms of a relation *between* things and a peculiar existence made up of consciousness, or else between things and functional operations of this existence. If it could be shown that psychology is essentially not a science of states of consciousness, but of behavior, conceived as a process of continuous readjustment, then the undoubted facts which go by the name of sensation, perception, image, emotion, concept, would be interpreted to mean peculiar (*i. e.*, specifically qualitative) epochs, phases, and crises in the scheme of behavior. The supposedly scientific basis for the belief that states of consciousness inherently define a separate type of existence would be done away with. Inferential knowledge, knowledge involving reflection, *psychologically* viewed, would be assimilated to a certain mode of readaptation of functions, involving shock and the need of control; knowledge in the sense of direct non-reflective presence of things would be identified (psychologically) with relatively stable or completed adjustments. I can not profess to speak for psychologists, but it is an obvious characteristic of the contemporary status of psychology that one school (the so-called functional or dynamic) operates with nothing more than at most a conventional and perfunctory reference to "states of consciousness"; while the orthodox school has to make constant concessions to ideas of the behavior type. It introduces the conception of fatigue, practise, and habituation. It makes its fundamental classifications on the basis of physiological distinctions (*e. g.*, the centrally initiated and the peripherally initiated), which, from a biological standpoint, are certainly distinctions of the structures which are involved in the performance of functions.

One of the aims of the "Studies in Logical Theory" was to show, on the negative or critical side, that the type of logical theory which professedly starts its account of knowledge from mere states of consciousness is compelled at every crucial juncture to assume *things*, and to define its so-called mental states in terms of things;² and on the positive side, to show that, logically considered, such distinctions as sensation, image, etc., mark instruments and crises in the development of controlled judgment, *i. e.*, of inferential conclusions. It perhaps was not surprising that this effort should have been criticized, not on its own merits, but on the assumption that this correspondence of the (functional) psychological and the logical

² See, for example, page 31. "Thus that which is 'nothing but a state of our consciousness' turns out straightway to be a specifically determined objective fact in a system of facts," and, page 58, "actual sensation is determined as an event in a world of events."

points of view was intended in terms of the psychology which obtained in the *critic's* mind—to wit, the psychology based on the assumption of consciousness as a separate existence or process. Thus when Dr. Pratt, in a recent discussion,³ says that the aforesaid “Essays” “might well have been written from the standpoint of solipsism,” I accordingly find an unintended compliment. Not that they were written, I hasten to add, from the solipsistic standpoint, but that they were written from a *logical* standpoint, to which the solipsistic controversy is irrelevant;—since a logical inquiry is concerned only with inferential relations among things, not with pre-conceptions about a lonely consciousness, or soul, or self. The assumption of a separate ontological world of consciousness which either is the self or is the possession of some self simply does not enter into the discussion.

When Dr. Pratt speaks of a “private stream of consciousness,” of “outer realities that never come within one’s own private stream of consciousness,” and of a relation between “these realities and our judgments about them, a relation which from the nature of the case one can never experience,” and “puts a dilemma” on the basis of these assumptions (p. 131), he puts, indeed, a dilemma to those who hold to these assumptions, but he misses the point of the “Logical Studies.” Whether with such assumptions Dr. Pratt and others who hold to them can logically escape solipsism—except by saying they escape it—is also a matter for them to consider.

In the earlier part of his article, however, Dr. Pratt seems to admit that logical inquiry may be carried on in its own terms, without being compromised by the necessity of accommodating it to foregone epistemological assumptions. He accepts the position of the “concrete situation” (p. 123), and emphasizes the notion that the center of the problem of the truth of ideas is found in the problem of judgment (p. 130).⁴ He gives an illustration, moreover, on the basis of which points at issue may be logically, not epistemologically, discussed. Dr. Pratt says: “Thus I believe my friend *B* is in Constantinople. If *B* really is in Constantinople, my thought is true. I confess it is impossible for me to see how anything could be simpler than this” (p. 124). In short, “a thought is true if the object of thought is as you think it.” Just before this (p. 123), however, Dr. Pratt has discriminated another sense of truth which marks a current, a correct, and an intelligible usage. This is the

³ This JOURNAL, Vol. V., p. 131, note.

⁴ Just how this doctrine is to be reconciled with the other assertion that the problem of knowledge is concerned with the relation (which “by the nature of the case can not be experienced”) between judgments in a private stream of consciousness and unexperienced objects *outside* the stream, it would be interesting to find out.

identification of truth "with *known fact*" (*italics in original*). What is the relation of these two meanings? Dr. Pratt insists (quite correctly, as it seems to me) that truth or falsity is a character of ideas only when ideas are in judgment: only, that is, as I understand it, when they intend a certain objective reference. The men who denied the existence of the antipodes presumably had the idea (or they could not have denied its truth), and the object was "as" they thought it when they "had" the idea. But their idea was not "true" because their judgments denied a certain *objective* connection. And when I "believe" my friend is in Constantinople, I do not merely entertain the idea as a floating image; I intend a factual reference. In short, the question of truth is not whether an *object* is "as you think it," unless the term "think" means as you *judge* it to be. The logical idea is short for a certain *judgment* about a thing. It states the way an object is *judged to be*, the way we *take it* in the inference process, as distinct from the way it actually may be.

If we compare this conception of truth with that of "identification with known fact," we get some striking results and some even more striking questions. When there is a *known fact*, there *is* a known fact and no judgment, and no idea. The known fact may very well be the *outcome* of a judgment, but it can not be part of any judgment that involves a *thought* of *B's* whereabouts. Or (since it is not the word judgment we are concerned with) the *kind* of judgment occurring when it is a *known fact* where *B* is, is radically different from that occurring when, his whereabouts *not* being certain, we inferentially judge him to be at Constantinople. Since the latter involves inference, consideration of evidence, it involves some doubt. Do we have any *thought* (as a part of an intended objective reference) of *B's* presence in Constantinople, save as we have also the thought of his *possible* presence somewhere else, plus the conviction that the weight of evidence is in favor of his being in Constantinople?

These questions suggest that before we can raise intelligently the question of the truth of ideas, we must consider the question of their status in judgment, judgment being regarded as the typical expression of the inferential operation. (1) Do ideas present themselves except in situations which are doubtful and inquired into? Do they exist side by side with the facts to which they refer *when* these facts are themselves known? Do they exist except when judgment is in suspense? (2) Are the "ideas" anything else except the suggestions, conjectures, hypotheses, theories (I use an ascending scale of terms) tentatively entertained during a suspended conclusion? (3) Do they have any part to play in the conduct of inquiry? Do they serve to direct observation, colligate data, and

guide experimentation, or are they otiose?" (4) If the ideas have a function in directing the reflective process (expressed in judgment), does success in performing the function (that is, in directing to a conclusion which is stable) have anything to do with the logical worth or validity of the ideas? (5) And finally, does this matter of validity have anything to do with the question of truth? Does "truth" mean something inherently different from the fact that the conclusion of one judgment (the known fact, previously unknown, in which it terminates) is itself applicable in further situations of doubt and inquiry? And is judgment properly more than tentative save as it terminates in a *known fact*, i. e., a fact present without the intermediary of reflection?

When these questions—I mean, of course, questions which are exemplified in these queries—are answered, we shall, perhaps, have gone as far as it is possible to go with reference to the *logical* character of ideas. The question may then recur as to whether the "ideas" of the epistemologist (that is, existences in a purely "private stream of consciousness") remain as something over and above, not yet accounted for; or whether they are perversions and misrepresentations of logical characters. I propose to give a brief dogmatic reply in the latter sense. Where, and in so far as, there are unquestioned objects, there is no "consciousness." These are just things in their factual relations. When there is uncertainty, there are dubious, suspected objects; things hinted at, guessed at. Such objects have a distinct status, and it is the part of good sense to give them, as occupying that status, a distinct caption. "Consciousness" is a term often used for this purpose; and I see no objection to that term, *provided* it is recognized to mean such objects as are problematic, plus the fact that in their problematic character they may be used, more effectively even than accredited objects, to direct observations and experiments which finally relieve the doubtful features of the situation.* Such "objects" may turn out valid, or they may not. But, in any case, they may be used. They may be internally manipulated and developed through ratiocination into explicit statement of their implications; they may be employed as standpoints for selecting and arranging data, and as methods for conducting experiments. In short, they are not merely hypo-

* When it is said that an idea is a "plan of action," it must be remembered that the term "plan of action" is a formal term. It throws no light upon *what* the action is with respect to which an idea is the plan. It may be chopping down a tree, finding a trail, or conducting a scientific research in mathematics, history or chemistry.

* Such a use differs from that of Perry, who would employ the term to connote formerly accepted, but now definitely discredited, objects: recognized errors, illusions, etc.

thetical; they are *working* hypotheses. Meanwhile their aloofness from accredited objectivity may lead us to characterize them as merely ideas, or even as "mental states," provided once more we mean by mental state just this logical status.

We have examples of such ideas in symbols. A symbol, I take it, is always itself, existentially, a particular object. A word, an algebraic sign, is just as much a concrete existence as is a horse, a fire-engine or a fly-speck. But its *value* resides in its representative character; in its suggestive and directive force for operations which when performed lead us to non-symbolic objects, which, without symbolic operations, would not be apprehended, or at least be as easily apprehended. It is, I think, worth noting that the capacity (*a*) of entertaining objects as mere symbols and (*b*) of employing symbols instrumentally furnishes the only safeguard against dogmatism, *i. e.*, uncritical acceptance of any suggestion that comes to us vividly; and that it furnishes the only basis for intelligently controlled experiments.

I do not think, however, that we should have the tendency to regard ideas as *private*, as personal, if we stopped short at this point. If we had only words or other symbols uttered by others, or written or printed, we might call them, when in objective suspense, mere ideas. But we should hardly think of these ideas as *our own* states. Such extra-organic stimuli, however, would not be adequate logical devices. They are too rigid, too "objective" in their own existential status. Their meaning and character are too definitely fixed. For effective discovery we need things which are more easily manipulated, which are more transitive, more easily dropped and changed. Intra-organic events, adjustments *within* the organism, that is, adjustments of the organism considered not with reference to the environment but simply as events on their own account, are much better suited to stand as representatives of genuinely dubious objects. An object which is *really* doubted is by its nature precarious and inchoate, vague. What is a thing when it is not yet discovered and yet is being tentatively entertained and tested?

Ancient logic never got beyond the conception of an object whose logical *place*, whose subsumptive position as a particular with reference to some universal, was doubtful. It never got to the point where it could search for particulars which in themselves as particulars were doubtful. Hence it was a logic of proof, of deduction, not of inquiry, of discovery, and of induction. It was hard up against its own dilemma: How can a man inquire? For either he knows that for which he seeks, and hence does not seek: or he does not know, in which case he can not seek nor could he tell if he found. The individualistic movement of modern life detached, as it were, the

individual, and allowed purely private (*i. e.*, intra-organic) events to have transitively and temporarily a worth of their own. These events are continuous with extra-organic events (in origin and eventual outcome); but they may be considered in temporary displacement as uniquely existential. In this capacity they serve for the elaboration of a delayed but more adequate response in a radically new direction. So treated they are tentative, dubious but experimental, anticipations of an object. They are "subjective" (*i. e.*, individualistic) surrogates of public, cosmic things, and they may be so manipulated and elaborated as to terminate in public things which without them would not exist as empirical objects.¹

The distinct perception then of intra-organic events, not as merely effects or distorted refractions of cosmic objects, but as inchoate *future* cosmic objects in process of empirical construction, solves, to my mind, the paradox of so-called subjective and private things which yet have objective and universal reference, and which operate so as to lead to objective consequences that test their own value. When a man can say this color is not necessarily the color of the glass or the picture or even of an object reflected, but is at least *my* color, an event which I may refer to my organism till I get *surety of other reference*, he is for the first time emancipated from the dogmatism of unquestioned reference, and is set upon a path of experimental inquiry which may lead to the discovery of a previously unexperienced thing, and possibly to a thing of a qualitatively different order from anything previously experienced.

I am not here concerned with trying to demonstrate that this is the correct mode of interpretation. I am only concerned to point out its radical difference from the view of the critic, who, holding to the two-world theory of existences which from the start are divided into the fixedly objective and the fixedly psychical, interprets the view that the distinction between the objective and the subjective is a logical-practical distinction, in terms of his own theory. Whether the logical, as against the ontological, theory be true or false, it can hardly be fruitfully discussed without a preliminary sympathetic apprehension of it.

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¹ I owe this idea, both in its historical and in its logical aspects, to my former colleague, Professor Mead, of the University of Chicago.

REVIEWS AND ABSTRACTS OF LITERATURE

Mental Pathology in its Relation to Normal Psychology. GUSTAV STÖRRING. A course of lectures delivered at the University of Leipzig. Translated by Thomas Loveday. London: Swan, Sonnenschein & Co. 1907. Pp. 298.

The English title is rather modest and does not give the full scope which the author claims to encompass in his lectures. In the original German the title is "Vorlesungen über Psychopathologie in ihrer Bedeutung für die Normale Psychologie mit Einsschluss der Psychologischen Grundlagen der Erkenntnistheorie." Professor Störriing's aim is not only to relate psychopathology with normal psychology, but also to furnish some psychological foundation for epistemology. The aim is certainly praiseworthy, as few psychiatrists are willing to put their work on such a broad basis.

Störriing starts with definitions of psychology and psychopathology. Psychology is defined as "the science of conscious processes" (*Bewusstseinsvorgänge*), and psychopathology as "the science of morbid mental processes" (*krankhafte Bewusstseinsvorgänge*). He does not explain in what respect the two sciences differ. Is normal psychology the general science, and abnormal psychology a special science based on the former, or are the two of equal rank? From his lectures it appears that he treats normal psychology as the general science and relates the two sciences as physiology is to pathology; the one deals with normal, the other with abnormal mental states or processes. The author does not think it necessary even to refer to the view that psychology may be treated as the science of the self. He makes a brief reference to "the soul," and dismisses the whole matter with the contemptuous term of "metaphysical psychology."

The division which Störriing follows in his lectures is the customary tripartite division of the mind. He gives no reasons for such a classification, and the reader has to take the matter on faith. Intellect, feeling, and will are the three main functions or processes of the mind, and the main volume of the lectures is divided accordingly; only the lion's share falls to the feelings. For Professor Störriing seems to think that the feelings or affects, as he likes to call them, being a disciple of Wundt, are at the very foundation of psychology and give the key to abnormal psychology. One is, therefore, not surprised to find that after defining the subject-matter of psychology and psychopathology he starts with a discussion of feelings and emotions. Feelings, according to Störriing, can not be reduced to sensations, special or organic, but constitute a class *sui generis*. At the same time he does not tell whether the affections are special psychic states with special physiological processes, or are mental states due to general bodily conditions, defined by Wundt as reactions arising indirectly in the course of the process produced in the organism directly by external agencies. The affections, according to Störriing, seem to be something general and indefinite; they accompany both peripheral and central psychophysiological processes, but themselves are

neither central nor peripheral. A psychology with soul as subject is metaphysical, a psychology with unanalyzable subjective affections is empirical.

In Störring's discussion of emotions the James-Lange theory naturally comes in for a good deal of criticism, if not rebuke. "It does not follow from them [the facts adduced by the theory] that emotions are nothing but sensations of bodily changes (*blosse Empfindungen der körperlichen Veränderungen, blosse Organempfindungen*). Sensations and feelings as given psychically are markedly different in quality." And, further, he emphatically tells us that "so far as I can manage to abstract single sensations out of an emotional state, I find them to be accompanied by affective tones which do not admit of further analysis." "Our view, then, is," he says in another place, "that the bodily changes which occur in these cases cause the emotions by arousing organic sensations and accompanying feeling tones. Further, as the organic sensations form with the affective elements a qualitatively unitary state, we say all these psychical magnitudes are fused in the emotional state (affective state, *Affectzustand*)." "Emotions" thus "represent fusions (*Verschmelzung*) of organic sensations and affective elements." Now "in artificial and pathological cases these are their sole constituents, whilst in the normal emotion there are also present primary affective elements which, however, do not determine its character." This last generalization is rather dogmatically stated, as the author does not attempt to justify it by facts; for it may be maintained that, on the one hand, "fusions of organic sensations and affective elements" play a primary role not only in artificial and pathological cases, but also in normal cases, and that, on the other hand, ideas and perceptions, with their accompanying primary affective elements or "simple feelings," are also present in artificial and pathological cases.

In one paragraph the author disposes of the problem of the relation of emotions to what are called "simple feelings." "We must distinguish the primary affective elements from the consequences of organic changes which become combined with them." Simple feelings and emotions differ. This thesis, however, is not well sustained, for he soon proceeds to tell us that "although organic sensations and organic feelings do enter into 'simple feelings,' still the concomitant bodily phenomena are so weak (!) that the intensity of the sensations and affective tones they provoke plays but a small part in the whole phenomenon, whilst, as we said, in emotions these form the principal constituents. Further, it may happen that the bodily changes are of such slight intensity as to arouse no sensation at all." This slight admission practically does away with the whole thesis, inasmuch as the difference between "simple feelings" and emotions is reduced to one of massiveness and possibly to intensity of organic sensations. Simple feelings and emotions may, then, be reduced, according to Störring's own admission, to peripheral processes coming from organic conditions; in other words, simple feelings and emotions really do not differ, they are identical and take their origin

in organic sensations. The very summary weakens Störriŕ's position: "Emotions differ from simple feelings in two respects: firstly, the relative intensity in the total effect of organic sensations and organic feelings, on the one hand, and primary affective tones, on the other, is different; and secondly, qualitative differences also exist, since certain organic sensations which are present in emotions do not occur in feelings, or it may be merely because organic sensations are in 'simple feelings' disproportionately dim." The difference, then, between "simple feelings" and emotions is simply a matter of intensity, dimness, and massiveness of organic sensations present. But as such a difference may also be found between one emotion and another, there is really nothing present by which "simple feelings" can be differentiated from emotions.

Having defined the difference between normal and morbid emotions by the presence or absence of primary affective elements, the accompaniments of ideas and percepts, Störriŕ is left in the lurch as to how to differentiate between emotions and moods; the latter can only be differentiated from the former by the fact of "the comparatively slight excitement and the comparatively long duration." In this respect we can not help agreeing with Stout that "an emotional mood is not quite the same thing as an emotion properly so-called. An emotion properly so-called must be felt in relation to some definite object; to be angry we must be angry about something. But the general state of irritation due, let us say, to a sleepless night, has not, as such, any definite object." On the whole, the view of affective processes as expounded by Störriŕ can not be maintained consistently.

Störriŕ's treatment of hallucinations follows closely the accepted views, namely, that intensified images may become sensory and perceptual,—hallucinations are "subjective sense images which strike him (the subject) as actual perception." The identification of idea, image, and sensation is one of the most fundamental psychological and psychopathological fallacies.

Störriŕ has a great love for generalizations, which is rather praiseworthy, but occasionally the adventuresome love of generalization is apt to lead him into rash statements. Thus he tells us that "hallucinations have far more influence than simple perceptions upon intellectual and volitional processes." This generalization is supported by a single unanalyzed hysterical case, whose conduct was so influenced by her hallucinations that the author could not change it. In the light of recent research on hysteria and subconscious manifestations, the phenomena observed by Störriŕ are merely superficial symptoms and can not be taken on their face value. One third of life normal persons pass in sleep, and most are subject to dream hallucinations, but it can hardly be claimed that dream hallucinations have a greater influence than simple perceptions upon intellectual and volitional processes. Again, there are many cases of hallucinations in normal and intelligent people on whom the influence of the hallucinations is next to nothing. It is only when hallucinations chime in with superstitions and prejudices that the influ-

ence becomes marked. In the unbalanced and the insane the hallucination may have a deep influence, but then it is not so much the hallucination *per se* that produces the effect as the general morbid condition of the mind as a whole.

Störriing is greatly troubled by the fact that the "intensity" of ideas and independence of the will are not sufficient to give an idea the objectivity of a percept, and so he adds "concomitant muscular and visceral sensations," which, according to him, fix the characteristics or marks of the percept. It is the well-known psychological view that muscular sensations give objective reality. "The sensations meant are such as arise from the activity of sense organs in perception." The English translation here misleads the reader by referring to "secondary sensations," and their reproduction in the percept. What Störriing refers to is *Nebenempfindungen*, or to associated sensations, which are widely different from the phenomena known in psychology and psychopathology as secondary sensations. Störriing means "*Nebenempfindungen die von der Thätigkeit der Sinnesorgane bei der Wahrnehmung berühren. Solche Nebenempfindungen können natürlich ebenso reproduziert werden wie die Hauptempfindungen.*" In other words, along with the special visual sensation, for example, the sense organ makes movements of adaptation and adjustment; these muscular sensations are thus associated with the special visual sensations, and it is those reproduced associated sensations or *Nebenempfindungen* of muscular sense that constitute the external reality of the percept or of the intensified idea. The hallucination, then, is an intensified, reproduced image of a special sensation, with intensified reproduced associated images of previous muscular sensations which thus constitute the complex *reproduzierte Mitempfindungen*. It is the old doctrine of hallucination: a hallucination is an intensified ideational or image complex. The doctrine appears different from what we read in every text-book, on account of Störriing's style of writing and exposition, further obscured by an inadequate translation. The sensational intensity of the hallucination is due to the "abnormal irritability of the cortex." The logic of facts seems to force Störriing to assume some peripheral source in the origin of hallucinations, so he finally comes to the conclusion, in the analysis of one of Cramer's cases, that "an idea obtains objective character by fusing with an objective impression; it acquires the impression's intensity and shares its objectivity." Similarly, illusions depend on the perceptual process of assimilation, which "consists in a sense impression reviving an associated idea and fusing with it into one perceptual whole. Thus we can distinguish an objective and a subjective element in perception, and we call it illusion when the subjective factor plays an abnormally prominent part in the process of assimilation." A close examination of Störriing's illusions and hallucinations reveals the current psychological views put forth in a complicated, obscure, and confused form.

Störriing then concludes his treatment of hallucinations with a peculiar attempt to decide the question "whether there are separate centers

for the correlates of sensational and ideational processes, respectively." He comes to the important conclusion that the "functions of the two are separate." This conclusion is arrived at on the strength of two hysterical cases of visual disturbances and one of Wilbrand's cases. Störriing is either not acquainted with or has overlooked the subconscious side of sensory disturbances in hysteria. An attempt to decide localizations of psychic functions on the strength of hysterical cases is not unlike the attempt made to study brain localizations on the strength of hypnotic experiments. It shows how difficult it is for one who has not a first-hand knowledge of subconscious activities to grasp fully the meaning of functional disturbances of hysteria and of allied mental states.

The author's summary of the different forms of aphasia is very good. He presents the main views on the subject, and brings cases which he closely analyzes and from which he draws conclusions interesting to normal and abnormal psychology. His view of "valence" of association "paths" is certainly interesting. "I speak of an association between ideas as having strong valence when it enables one idea to reproduce another correctly as to content and in time without retardation (relatively to the average rapidity of reproduction in the particular associational system); whilst I call the valence weak when the reproductive tendency of the first idea is not strong enough to revive the second, but requires support, say, from some third idea which has a similar connection with the second." This principle is ingeniously utilized in the explanation of pathological material of aphasia, agraphia, alexia, apraxia etc. He further finds that "in the mechanism of spontaneous speech and in that of reading this interesting condition is realized: an idea *a* is doubly associated with an idea *c*, first, through an intermediate idea *b*, and, secondly, directly; the association of *a* and *c* is extremely frequent; and yet *a* does not develop a strong tendency to direct reproduction of *c*, even though one may voluntarily recall *c* by means of *a* times without number and may have no direct interest in a preliminary revival of *b*. In the mechanism of writing, on the other hand, the direct connection attains strong valence." This is explained on the principle of valence of the various association paths of the respective activities of spontaneous speech, reading, and writing. Störriing, as usual, adheres to the orthodox view of "images and brain localization."

From aphasia the author passes to the amnesias, and he rightly refuses to differentiate the two on the basis of organic and functional derangements. In aphasia we deal with elementary processes of frequent repetition, while in the amnesias we deal with mental processes of high complexity. Störriing deals first with the *Dämmerzustände* of epilepsy, psychic epilepsy, and hysteria. (The term "mental fog" used by the translator for *Dämmerzustände* is not a very happy one.) In his discussion of psychic epilepsy he takes it for granted that the states are of an epileptic nature, evidently not being aware of the fact that many of the *Dämmerzustände* known as psychic epilepsy are not at all of an epileptic

character. According to Störriing, there is in psychic epilepsy and its *Dämmerzustände* a modification of organic sensibility "which is the explanation of the amnesic phenomena." In other words, Störriing arrives at the interesting generalization that memory is a function of organic sensations, "the *concausæ* of reproduction"; memory changes with the modification of organic sensibility. Space does not permit discussing this view in full and pointing out its unpsychological character, its many shortcomings, its lack of conformity with facts. As the subject has been discussed by me in my previous works, the ground need not be gone over here again. It is enough to refer to the fact established by many investigations in my laboratory, a fact which has since been confirmed by other investigators, that many *Dämmerzustände* of psychic epilepsy are of a purely subconscious nature and have nothing to do with epilepsy proper and its changes of organic sensibility. The whole argument of Störriing's is an *ignoratio elenchi*. Epilepsy with its modifications of organic sensibility is not necessarily connected with "psychoepileptic *Dämmerzustände*." Moreover, there may be changes of organic sensibility, as in many intestinal and other severe bodily maladies, without the least change in memory, and there may be profound changes in memory without the least changes in organic sensibility, such as in the amnesias brought about by traumatic conditions and by states of dissociation. Organic sensations are neither *causæ* nor *concausæ* of memory.

When we come to the so-called *Dämmerzustände*, or, rather, subconscious states of hysteria, the author displays a want of knowledge and a lack of appreciation of facts as should be expected of the doctrinaire, dogmatic, reasoning spirit so highly characteristic of people who cull their knowledge of facts from articles and books. Störriing has evidently no direct experience of subconscious states, artificial or spontaneous, and he theorizes dogmatically on cases he has read in Janet, Breuer, and Freud, and a few other original investigators.

The derangement of affectivity (*Die Störung des Gefühlslebens*) seems to the author the most characteristic manifestation of hysteria. "It consists, firstly, in great instability of affective states, and, secondly, in abnormal intensity of the concomitant bodily phenomena, more particularly—and so far as I know, this point has never been emphasized before—of those accompanying reproduced affective states (*reproduzierte Gefühlszustände*) which are themselves abnormally intense in consequence." Störriing is evidently not aware of the fact that *recurrence* of mental states characteristic of dissociated states in general has been put by psychopathologists at the very foundation of psychopathology. Störriing reminds one of the man who has just invented gunpowder. The interesting point is that Störriing does not understand the importance of recurrent states, and when he comes to hysterical anesthetics, the most elementary phenomena of functional psychosis, he breaks down helplessly, confessing "we can not tell how precisely they originate." He falls back on Janet's hypothesis of "hysterical narrowing of consciousness" a hypothesis the full significance of which the author does not :

When we come to the phenomena of multiple personality, we find him to be at sea, floundering about helplessly, making wild statements and fanciful hypotheses. He tells us that "the facts which have led some authors to assume a splitting of consciousness into parts are comprehensible without that assumption." The phenomena of double and multiple personality are simply a matter of alteration of organic sensibility. "We saw in the last lecture how a modification of organic sensations affects memory, namely, by introducing an alteration in the *concausæ* of reproduction. In the same way it makes the phenomena of double consciousness perfectly intelligible. When one abnormal state is after a normal interval succeeded by another abnormal state, in which there is a similar alteration of organic sensibility, then, as we have seen, the events of the first abnormal state can be recalled. But that is not so in the normal interval. During the normal interval there is partial amnesia for the events of the first abnormal condition, owing to an essential modification of the *concausæ* of reproduction. In the subsequent abnormal state memory is restored, because the general conscious complex is once more the same as it was in the first state." As a matter of fact, organic sensibility has nothing to do with memory, and in the cases of double and multiple personality studied by me there was not present the least trace of changes of organic sensibility. Thus in the Hanna case, the most typical case of double personality, since no hypnotic suggestions were present to mar the manifestations, the organic sensibility of the two personalities was essentially the same. The phenomena of simultaneous disintegration of consciousness or of coexistent, but dissociated, consciousnesses, or personalities, are explained by the same affective states, so that there is no need to assume "splitting of consciousness." The author gets here so far away from facts and his explanations are so confused and obscure that there is no need to trouble the reader with a criticism of his theories.

All forms of amnesias are explained by changes of organic sensations and by intense affective states which inhibit ideas "rising on the threshold of consciousness." Störing's hypothesis is in gross contradiction to facts. In the many cases of amnesia studied in my laboratory no changes of organic sensibility were observed that could in any way be correlated with the amnesias under investigation. Other investigators found the same result. Again, in hypnosis and in artificially induced somnambulism amnesia is induced at the mere suggestion of the experimenter; organic sensibility has absolutely nothing to do with it. The amnesia again can be removed at the mere gesture of the experimenter. Many, if not all, of the hysterical or functional amnesias are just of that type, and there is no question of affective changes or of modifications of organic sensibility.

Störing attacks Janet's and Binet's "assumption of unconscious sensations and ideas" (*unbewusste Empfindungen*), and assumes the hypothesis of "dimly conscious states" (*dunkelbewusste psychische Grösse*). He attacks a man of straw. No psychopathologist of note who has a first-

hand acquaintance with the facts would for a moment maintain the assumption of unconscious ideas. Störring does not understand the central point of modern psychopathology, namely, the demonstration not of "unconscious," but of *subconscious*, or of what my friend Dr. Prince terms, to avoid all misconception, *coconscious* mental states, mental states which are dissociated, but none the less *conscious*.

Störring's discussion of imperative or insistent ideas is very much on a par with his discussion of amnesias and phenomena of double and multiple personality. The affective states which are supposed to bring about amnesias are called in here to bring about the opposite effect, namely, to cause a hyperamnesia and fix the idea in consciousness. Störring thus manages to get the utmost out of the affective states. The affective states are worked for all other abnormal mental states. The same tune with slight variations serves for all occasions. Paranoia, manic-depressive states, *dementia præcox*, melancholia, and allied psychoses, all find their explanation in the affective tones of organic sensations.

We may possibly refer to Störring's theory of the physiological correlate of feeling tone. He favors the view maintained by many psychologists since the time of Spinoza that "pleasure (*Lust*) is concomitant with an increase, unpleasure (?) (displeasure, *Unlust*) with an abatement, of vital functions." Agreeable and disagreeable would probably express better the writer's meaning, because pleasure is more related to pain. Now, according to Störring there may be three possibilities: "Pleasure (*Lust*) may be connected either with intake of potential energy, or with transformation of potential into kinetic energy, or with a definite ratio of kinetic to potential energy." He accepts the second possibility. Störring does not refer to one of our foremost American psychologists, Marshall, who many years ago worked out in a separate volume a similar theory based on rich material of facts and with a deep psychological insight into mental life. It seems that Störring is not acquainted with the works of English and American investigators, a fault not uncommon among German writers. It is interesting that the whole theory is based on a single fact, namely, on one experiment performed on the muscle of a curarized frog. "The curve resulting from supramaximal stimulations is markedly differentiated from the rest by an earlier and more rapid fall and by the shorter duration of the twitch." In face of the extreme complexity and difficulty of the problem psychologists will hardly be satisfied with a physiological demonstration of the curarized muscle of the frog.

In spite of all its defects the book is valuable, stimulating, and highly suggestive, as it is the first attempt of its kind to correlate normal and abnormal psychology. One great merit of Störring's lectures is the comprehensiveness with which he attempts to discuss the morbid mental states in their relation to psychology and even to epistemology, and although he fails in many respects, the attempt is certainly of the utmost importance to the psychologist and psychopathologist; his work should be in the hands of every student who is interested in the correlation of normal and abnormal psychology.

BROOKLINE, MASS.

BORIS SMIS.

Principes de linguistique psychologique: Essai de synthèse. JAC. VAN GINNEKEN. Paris: Marcel Rivière. 1907. Pp. 552.

This book is an attempt to illustrate the place of the Indo-Germanic languages in a system of linguistic psychology. The author has gathered together no inconsiderable amount of philological material, which he has presented in an original and often quite suggestive form. The linguistic student will probably find more of value in the wealth and systematization of this material than in the psychological analyses which are based upon it.

The subject-matter of the book appeared in Flemish some two years since, and the present volume is a translation; by whom, does not appear. It invites comparison with the first two volumes of the "*Völkerpsychologie*," although the two works really present a considerable contrast. Dr. van Ginneken writes primarily as a philologist, and his psychology is imported; Wundt, on the other hand, represents the psychologist dealing, necessarily largely at second hand, with a wide range of linguistic material. The two fields are so extended that a single investigator could hardly be expected to produce a system of linguistic psychology not open to a good deal of criticism from one source or the other. On the whole, the more valuable contributions may probably be expected from the philological side, as is Dr. van Ginneken's. Analytical psychology, at least, does not yet appear to have made essential contributions to any one accustomed to clear thinking about linguistic processes from the historical standpoint, and there is little opportunity for more purposeless blundering than the attempt to psychologize upon a hypothetical philology.

No one but a philologist would be in a position to discuss the bulk of Dr. van Ginneken's material, though it is, perhaps, fair to assume that an advanced pupil of Uhlenbeck is not likely to fall into any very serious historical errors. He seems to have been critical in his choice of philological sources, though he is apparently unaware of the name of Bülbring, and that of Mauthner receives only a passing mention. The first part of the book deals mainly with psychological data gathered partly from analytical and partly from pathological, only meagerly from experimental, fields. The presentation of linguistic imagery and association is not written by nor for the psychologist, and for him will contain little, if anything, that combines novelty with importance. The second part offers an ingenious analysis of the grammatical categories, and the third deals with the influence of what might be termed the "subjective signification" (*sentiment, conscience directe et subjective de soi*) upon semasiological development; this portion of the work contains some very interesting material on these points. The fourth part deals mainly with the motor aspects of language, and it is here that the deficiency of the work on the experimental side is most apparent; rather more is known of the physiology of motor speech than seems to be made use of in these chapters.

It is also probable that most students of comparative philology would incline to question the value of any system of linguistic psychology whose limits did not farther transcend the limits of the Indo-Germanic family.

In the single instance, for example, of the grammatical categories; it is not altogether easy to understand how the system into which Dr. van Ginneken has built them would maintain itself in those linguistic families in which these distinctions largely disappear. It may be added that the French is difficult, and the book will not be followed readily by any one unfamiliar with philological backslang. It would seem unfortunate that French dialectic abbreviations are used, for German work so preponderates in this field that it requires some effort to remember, for example, that *v.h.all.* means *ahd.*

FREDERIC LYMAN WELLS.

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JOURNALS AND NEW BOOKS

RIVISTA FILOSOFICA. March-April, 1908. *La creazione* (pp. 149-180): B. VARISCO. - A criticism of Bergson's "L'Evolution créatrice. Evolution is a concept whose application is limited to life on the earth. *Il nuovo individualismo religioso* (pp. 181-209): N. FORNELLI. - (Continued from previous number.) The concentration of the individual and the accompanying privacy of his religious sentiments are new and characteristic symptoms. Assuming the continuity of scientific progress, the sense of the infinite is bound to grow more profound and intimate, while increasing toleration will make us more indifferent to the concrete forms used to represent the infinite. *La psicologia della esperienza indifferenziata di James Ward* (pp. 210-224): A. LEVI. - Continues the exposition of Ward's psychological theories. *Bramanesimo, Buddismo e Cristianesimo* (pp. 225-246): A. TILGHER. - Buddhism is the antithesis and the logical continuation of Brahmanism. (To be continued.) *Psicologia e linguistica* (pp. 247-261): P. F. NICOLI. - An account of certain tendencies in modern linguistic science. *Rassegna bibliografica: Opere di Ugo Janni F. Filomusi Guelfi, Ernst Cassirer, A. Kann. Notizie e pubblicazioni—La filosofia al congresso dei classicisti. Sommari delle riviste straniere. Libri ricevuti.*

Cultura Española. Num. X. Madrid. May, 1908. Pp. 335-642.

Hartenberg, Paul. *Psychologie des neurastheniques.* Paris: Felix Alcan. 1908. Pp. 248. 3 fr. 50.

Hill, David Spence. *The Education and Problems of the Protestant Ministry.* Worcester: Clark University Press. 1908. Pp. 94.

NOTES AND NEWS

"THE gift of \$750,000 by Mr. Henry Phipps to Johns Hopkins University, for the foundation of a psychiatric clinic, will serve a threefold interest," the *New York Medical Journal* states in its issue of June 20. "In the first place, it will be the mental ward of the general hospital, in

which patients may be received for treatment without the formality of commitment, and without the stigma that attaches itself to patients with mental trouble, a relict of the days of supersition and idolatry, when the mentally ill needed to have devils cast out of them; secondly, it will afford opportunities for instruction in this vast and much neglected field of medicine; and finally, by reason of the rich endowment, laboratories for research will afford unusual opportunities for the carrying out of the extremely technical studies that work in this field requires. It is a subject for much congratulation that through such a gift the importance of mental disorders is emphasized. There is no field of preventive medicine that can reap such fruit as that of psychiatry. We have struggled for years to save legs, to patch up internal organs, to keep out and subdue infections; now is the time to reap a rich harvest in saving the mental powers of mankind. Is there a way to lessen crime, to limit the outlay of the public money in caring for the thousands of dependents, the idiots, imbeciles, demented, and chronic mentally ill? If there is, it will come about only by the better recognition of the mental factors which bring about such conditions. The new psychiatric clinic will serve as a useful beginning in this line, and we confidently look forward to the time when others will see the needs as Mr. Phipps has seen them, and respond to the call."

THE trustees of the Johns Hopkins Hospital and University have elected Dr. Adolf Meyer, of New York, to the directorship of the psychiatric clinic made possible by the gift of Mr. Phipps, and to the professorship of psychiatry. Dr. Meyer has accepted, and it has been arranged for him and the architect, Grosvenor Atterbury, of New York, to go abroad at an early date and study the construction and organization of the leading European psychiatric clinics. Dr. Meyer was born in 1866, in Zurich, Switzerland. He studied in Paris, London, Vienna, and Berlin, and came to this country in 1892. For two years he was pathologist to the Illinois Eastern Hospital, and subsequently director of the clinic in Worcester (Mass.) Insane Hospital. In 1902 he became director of the Pathological Institute of New York State Hospital on Ward's Island, and since 1904 he has been professor of psychiatry in the medical department of Cornell University. He is also president of the New York Psychiatrial Society.

DR. HARVEY CARR, professor of psychology in the Pratt Institute, will succeed Dr. J. B. Watson (professor-elect in Johns Hopkins University) as assistant professor of psychology in the University of Chicago. Dr. Carr will have charge of the work in comparative psychology and will share in the conduct of the general experimental courses.

DR. CLARENCE S. YOAKUM, of the University of Chicago, has accepted a position as instructor in psychology at the University of Texas.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

ENERGY AND REALITY

II. THE DEFINITION OF ENERGY

WE have tried so far two roads, in order to supplement experience—one, that of independent substances, and the other, that of the idealistic absolute; and both roads have led us to the same goal, the recognition of process as an ultimate fact. We have discovered that "everlasting fixtures," to use Plato's phrase, whether substances or an absolute, will not account for our world. Mass and abstract entities, on the one hand, and perception, on the other, imply "powers" or energies. A thing must be *known*, at any rate, through what it does or can do; it must be defined through its dynamic relations. Elastic balls, geometrical figures, and abstract conceptual entities must be regarded as, at most, convenient shorthand for the ever-restless processes. Although this fact was recognized by philosophy long ago, it is to the actual working necessities of science, from Galileo down, that we owe our present formulation of energy.

But if energy must be regarded as the fundamental fact, what do we mean by energy? It has been customary for the text-books on physics to distinguish between two kinds of energy,—energy as doing work, or kinetic energy, and energy of position or configuration, which has been called potential energy. But this distinction is, after all, merely relative; potential energy is active, too, but in a different way. Whether we shall call energy active or potential depends merely upon our purpose. A body can not be in a certain position without certain energetic interactions; and these are just as real energy as that brought about by the fall of the body. Ether waves may be regarded as potential light sensations, but they symbolize, for all that, actual physical energy. All energy, therefore, does work or is active.

But what do we understand by doing work? This as ordinarily used is not a simple concept, but involves, besides energy, time and space. We must, therefore, try to find a simpler formulation of our concept. In doing work, moreover, is one energy really trans-

formed into a different energy? Take chemical changes as the condition of electricity, or food as the condition of mental energy, can we say here that one form really *produces* another form; that the chemical changes *become* electricity, and food-stuff mind stuff? This, at least, would be difficult to prove; and we must be content for scientific purposes to treat one set of processes as the describable conditions or antecedents of another set of processes. Somehow one set of processes do connect or become confluent with another set. The phenomenal conditions are not the whole story, but they are *our* story, except when we deal with transitions within experience itself. The antecedents may or may not be the same in kind as the consequents; and, as in many cases standards applicable to one set of processes are not applicable to another set, we can not very well speak of identity of energy in such cases. In the case of chemical energy, for example, mass and weight are applicable, but these have no relevancy when it comes to electricity or conative energy. One of the great stumbling blocks in the past to a thorough conception of the energetic wholeness of nature has been the difficulty of imagining how molecular motion could *produce* feelings and volitions. It is this difficulty which leads Clifford and others to espouse the meaningless doctrine of parallelism. But we appreciate now that the difficulty of production would be about as great in molecular motion producing electricity. Hence the old difficulty appeals to us less. Parallelism of facts or energies would mean that one set of energies could make no difference to another set. Parallelism to our purposive energies would, therefore, mean absolute ignorance. And, on the principle of parsimony, or any other sensible principle, we would have no right to assume such energies. All that is needed, however, is that we should have describable conditions, or that one set of processes should make a predictable difference to another set. If processes in their sequences satisfy certain expectancies, or have such uniformity as enables us to adjust ourselves to the future, that is the only conception of energy with which we are concerned. The possibility of ultimately simplifying energy into one form we shall deal with later.

If we define energy, with Lotze, as determinate position, we must not forget that energy involves happening, that it is fundamentally process. Lotze strives hard to get rid of space or externality, and to reduce the energetic positions to phases within a spiritual whole, to a polyphonic esthetic unity. With a conception of energy which strives to get rid of energy, we are not here concerned.

It will appear on closer scrutiny that the concept of energy is a dual concept involving *process* or stuff, on the one hand, and *constancy* or *uniformity* of processes, on the other. This has some-

times been ignored, and it has been supposed that mere constancy exhausts the concept.¹ If we look at the process side, we find it convenient to recognize qualitative differences of processes. Chemical processes, for example, are different from neural; and again, among chemical processes we must distinguish some seventy or eighty elements which so far have remained irreducible to each other. Take the mere field of sensations, and we must distinguish some fifty thousand different processes. If we look again at the constancy aspect of our concept, we must not regard this as a mere subjective habit, with Hume, or a category of substance, with Kant; but we must regard the relative uniformity of processes as real as the processes themselves and inseparable from them, forced upon *us* and not upon the processes. It will be apparent now that the concept of energy is a very complex concept. We can only hope to offer the most provisional kind of definition. Let us lay it down, then, that energy is such a uniformity or constancy of processes as makes prediction of the behavior of things under definite conditions possible. As our knowledge of the external world depends upon perceptions, we may say that nature consists of such predictable processes as can appear in our actual or possible experience.

That does not say that energy is nothing but perceptual uniformity, but only that we are dependent for our immediate data upon such perceptual processes. Hume is right, as over against Berkeley, that we must assume "powers," and not mere perceptual qualities; but he is not right in calling these altogether unknown "powers." That depends upon what we mean by knowing and the powers we are talking about. The powers, to be predicated at all, must be capable of making differences to other "powers" under certain circumstances. Among these are the differences they must make to our own human nature. We can know these powers, in some sense, at least, viz., in so far as they react upon each other and, most important of all, upon our psychophysical organism. The real must *seem*, in order to make science at all possible. In the case of nature processes, however, we must be satisfied with a knowledge of their external continuities, with the differences which they make to *us*; we can not have access to their own inwardness. This is only possible in the case of conscious beings like ourselves. The inner reality of energy is not something we can sense, but something which must be acknowledged. The inner significance of the process must be furnished by the constructive imagination—using the sense energies as signs and tests in its ejective procedure. It is anthropomorphic, in the worst sense, to suppose that our strain and resist-

¹ This seems to be the idea of Poincaré in his brilliant book "Science and Hypothesis." See especially p. 132 (English translation, 1905).

ance sensations from joints and tendons can be read into the objective processes of nature. All we can say about nature is that certain rearrangements appear to us in certain ways and can be predicted and, to a certain extent, controlled by our wills. It is in our consciousness of fulfillment of purpose that energy becomes a real activity and not a mere artificial piecing-out of what goes on behind the scenes. In our own purposes the reality of the process is revealed to us first-hand; the rest is interpretation and conjecture.

But is energy anything more than a collective name for those uniformities or describable conditions which can be established through experience? The passion for simplification is one of the deepest and most universal passions of human nature; and there always will be a tendency, no doubt, to find some *Urstoff* in terms of which all this variety of process can be expressed. And so we have our vortex hypothesis; our atomic hypothesis; the various spiritualistic hypotheses, such as the will theory of Schopenhauer; and the more modest agnostic attempts, such as the double-faced unknowable of Spencer, which is truly void of expression in both its faces, the physical and the psychological, stolid as an Oriental. The history of philosophy and of science, from Thales down, might almost be written in terms of this quest for *Urstoff*. We have substituted, to be sure, energy for substance; but have we really simplified matters so far as finding an identical basis is concerned? Does not the fancied unity of energy break into pieces in our hands, as much as the older theory of substances? Have we not been misled by the name of energy into supposing that we have discovered real identity? When we fancy that we have identity, have we not introduced additional determinants to meet the variety of facts, and is not the real complexity as great as before?

This, at least, seems to be the case with the motley array of energies with which Ostwald entertains us.² I can see no unity here except the name on which all the Protean types are strung. We must at least find a more fundamental unity than a mere term can furnish. Do energies all do work? Very well, it is through the *difference* of the work they do or through the difference of the effects which they occasion that we know them or identify them. Ostwald has, after all, succeeded in saying nothing more than that one set of changes, under certain conditions, is followed by another set of changes. He has said nothing about the real nature of the processes; his energies are nothing but classifications of expectancies, an enu-

² W. Ostwald, "Vorlesungen über Naturphilosophie," 1902; also "The Philosophical Meaning of Energy," *The International Quarterly*, Vol. VII, p. 300.

meration of various types of uniformity. The best he has done is to emphasize that one set of processes can make a difference to another set of processes throughout the whole scale of cosmic changes; but his whole account deals merely with the phenomenal side of the processes, not with the metaphysical side. This is nowhere more apparent than in his absurd attempt to deal with purposive experience as a derived or composite type of energy. We shall recur to this later.

When it comes to establishing the number of kinds of energy or the identity of energy, we must proceed, not by *a priori* assumptions or mere esthetic predilection; we must fall back upon the pragmatic test, viz., How many kinds of energy are needed to account for the diversity of our facts? Simplification and the discovery of greater diversity here have gone hand in hand. While successful in reducing light and magnetism to the category of electricity, new phenomena in the way of radioactive substances have appeared. Only one universal formula can so far be laid down with any degree of certainty, viz., that all known energies are capable, under describable circumstances, of making a describable difference to each other. In this sense the universe may be said to be energetically one.

In the attempt to simplify energy, two forms of cleavage have been particularly obtrusive. Perhaps the greatest drawback to the simplification of energy has been the distinction between physical processes, on the one hand, and conscious processes, on the other hand. It has rightly been insisted that the generation of consciousness from non-conscious processes must be an ultimate mystery. This objection to the energetic continuity of the world, if not its identity, I have tried to remove in another paper on "Consciousness and Reality."² In this I have tried to show that consciousness is not a form of energy, but must be regarded as an independent fact or dimension of reality; that the difference which consciousness makes, namely, that of awareness, does not involve any variation in consciousness, but in the complexity of the energetic conditions; that psychic processes, therefore, as processes, can make differences to other processes and can vary with them, quite irrespective of consciousness. To avoid misleading associations I have called this psychic activity conative energy, which, it will be recognized, may be either conscious or unconscious, may be either tendency or meaning, according to the conditions. While such a theory has nothing to do with deciding the question of an ultimate *Urstoff* or identity of energy, it does take away the greatest conceptual obstacle to energetic relations. It may still remain true that conative energy is fundamentally different from chemical or electrical energy. *Phy-*

² This JOURNAL, Vol. V., p. 232.

ical energy still remains an *X*, so far as its inside is concerned, and does not become psychological processes. We may know a great deal about its workings, its predictability, and manipulation, but we know nothing first-hand about it. It is only a name for certain constancies or uniformities of perception, which make prediction possible; but our knowledge of it to the end remains phenomenal. This *X* we may divide into *X*'s according to convenience, in dealing with the perceptions and uniformities of nature. Thus it may be convenient to treat the *X* which manifests itself to perception as mass and weight as different from the *X* of electricity, to which mass and weight are not even phenomenally applicable. How many *X*'s we need, how many types of constancy, must be determined in the process of the adjustment of our purposes to the larger world.

The other great obstacle to simplification has been the cleavage as between energies where mass and weight can be applied as measures, as in the case of mechanical and chemical processes, and energies where no such units can be applied, as in the case of electrical and nervous energy. The vigorous attempt to bridge the gulf between mass energies and electrical energies we have referred to in our discussion of mass.

The brilliant work in regard to the atom by such men as J. J. Thomson, Rutherford, and others shows that atomism is not a dead issue, but is still to be reckoned with. You can not brush aside atomism by the mere dogmatic wave of your hand to the effect that reality is one and undivided, as has been assumed in Spinoza's "extension," Schopenhauer's "will," the Vedānta "self," and other poetic efforts. Such questions can be settled only with reference to the demands of experience; and the success of atomism must depend upon whether it can be shown to have a basis in facts.

But there is little in common between this present atomism of the electrical school and the old atomism. In the new atomism energy has become the chief interest rather than mass or weight, and it has been confidently asserted that these can be reduced to motion and distance. The atom is no longer regarded as eternal and indifferent, but is the storehouse of pent-up energy of enormous quantity, though, as in the case of radium, it may be in a very unstable equilibrium. Instead of extended bits, we have now to deal with electrical charges of a positive and negative kind, although it may still be convenient to speak in terms of particles or corpuscles as vehicles of charges. Instead of the mythological "bonds" of an older chemistry, we have the relation of these positive and negative charges to each other, the former accounting for the relations between the charges within the atom, while the latter, being more

diffuse, account for the form of the atom as a whole. Atomic relations are explained by the fact that atoms can, under certain conditions, receive or expel particles, in the former case increasing their negative, in the latter their positive, charge. By means of this electrical atom and its simpler unit, the electron, which bears very much the same relation as regards distance to the gross atom that interstellar masses bear to each other, the electrical school strives to find a common unit which, through the stability or instability of its component electrons, can account for the scale of physical changes from the ordinary chemical elements to the strange behavior of radium. And it has even been suggested that nerve energy and mental energy are "inductive" relations and can be reduced to electrical phenomena. Thus this school feels that at last the old dream of one ultimate *Urstoff* has been attained. We have, instead of the old mechanical pluralism of the atoms of Democritus, with their dependence upon mechanical contact, a new energetic pluralism which is capable of constituting its own continuum over intervening distances by means of energetic charges, whether within or outside the gross atom of chemistry.

The reason given for the attempt to simplify all matter and energy into terms of electricity has been stated to be that we know something about electrical energy and its relations, while we are ignorant of other kinds; hence the economy in reducing them to electricity. This assumption may well be doubted. To be sure, we have learned a great deal about manipulating electrical energy, but do we really know what electrical energy is? If not, how are we any nearer an explanation? In speaking of mental energy, moreover, as sustaining inductive relations to others, or being radioactive, are we not dealing merely with metaphors of a very questionable kind? I have already referred to the interesting analogies pointed out by Thomson as between the figures assumed by magnets in an electrodynamic field and the periodic law of the elements. But after all, is this anything more than an analogy, however ingenious it may be? Would energies necessarily have to be identical in order to obey the same mathematical laws? As regards the different conductivity of different elements, would this prove, any more than disprove, an electric substrate? Does a man carrying a log necessarily have to be a log? Is not the electrical theory another attempt to reinstate the dogmatic principle of Empedocles, that all action must necessarily be that of like upon like? I can see no reason for admitting any such *a priori* assumption in whatever scientific disguise. For empirical purposes, at any rate, we must recognize ultimate chemical elements and other divisions of energy without thereby prejudicing interaction. And to reduce mental processes

which we know to electrical charges which we do not know is not very illuminating.

The doctrine of *Urstoff* may, after all, be a mistake, a running after a *fata morgana*, a search for the philosopher's stone. It is, at any rate, simpler to assume as many energies as the difference in dealing with the facts makes convenient, and we can not deal with a stone or a mind as though it were electricity. Connecting with a stone or a mind does not produce the same consequences as connecting with an electric current. Even if the characteristic properties of matter, mass, and weight can be reduced to motion and distance, or if the mechanical atom can be regarded as only a half-way house for treating a fact which really consists of electrical charges with their particular and constellation velocities, it still remains true that mass and weight *are* determinants which electric currents do not possess; and it will still be convenient to acknowledge them for descriptive purposes. What we need for epistemological purposes is not *one stuff* or identity of energy, but the possibility of one energy, under statable conditions, making a difference to another, whether of the same kind or not. And so much at least seems clear from present scientific advance. To what degree we can acknowledge identity we must leave to the progress of science.

If we are to start with the known and work from this to the unknown, there is only one place where we can start, and that is with purposive or conative energy. The mistake made by the distinguished physical scientists referred to is in supposing that we do know material energy, especially electrical, and that we can work from this into other realms of energy, including, perhaps, conative. As a matter of fact, the only form of energy of which we know anything first-hand is purposive energy. If we are to simplify, if we are to attempt any form of monism, here would seem to be the place to start, for, on the one hand, this is the only form of energy of which we have immediate awareness; on the other hand, we know this in an indefinite number of stages of complexity, while our knowledge of electrical energy is conjectural at best. We might, too, no doubt, accommodate our mathematics to such a theory of the fundamental nature of things. There would be, for mathematical purposes, nothing more absurd in treating things as made up of conative tendencies than as made up of electrical charges, inasmuch as mathematics in any case is indifferent to the metaphysical stuff of things. And inasmuch as all energies, to be known at all, must make a difference to mind-stuff or our reflective purposes, such simplification would be the only logical working-out of the principle that all action must be of like upon like. It would not be necessary, moreover, to regard this mind-stuff

as feelings, as Clifford does; or as perceptions, as is done by Leibniz. Feelings and perceptions have no meaning apart from consciousness, and we have shown earlier that the larger part of our mental constitution must be unconscious, so far as we know, at any one time. Conative tendency, therefore, as it is the most basic fact of our mental life, affords the additional advantage of not being necessarily associated with consciousness. It is for psychology to describe the laws and sequences of this process of conation, leaving it to philosophy to correlate this energy with other energies of nature. It is not the business of psychology, any more than of any other science, to falsify what it finds, but to give as true an account as it can under the limitations which it sets itself. And such sequences and connections as it sets itself to deal with must in so far be true sequences and laws.

All the interesting speculations which energy admits of elsewhere will be equally available here. Does mind-stuff, for example, act at a distance? Is it radioactive in its nature? Can we account for mass on the basis of non-extended sensations with their simultaneous and successive fusion. Is it, like some other subtle energies, an energy which this earth can scarcely hold? Is it limited to certain neural conditions for being caught and manifesting itself? Here, as in the case of other conceptions of energy, such questions must not be settled *a priori*, but on the basis of evidence. We might take advantage of interesting analogies, at least, from recent science as regards action at a distance. Perhaps there may be relations between mind and mind analogous to wireless telegraphy, as contrasted with the grosser methods of ordinary perception with its end-organs and nerve wires. And not only might we find illustrations of such telepathic connection in the out of the way facts of psychical research, but the social consciousness itself, with its high degree of suggestibility and its sense of companionship and unity, might be the most striking instance of such telepathic action, not to mention the sense of divine presence of which the mystics have made so much. We can not, at any rate, be said to have settled all the possible forms of interrelationship of mind to mind, and there may be subtler ways of connecting up mind centers than have been dreamt of in man's past philosophy, and they may be ways nearest home, too, and not merely pathological; in fact, while we know a great deal more about the inwardness of mind-energy than electricity, we know far less of intersubjective connections than of electrical connections. To use telepathic relations, however, for all psychic interactions, misses the whole point of the distinction, as using radioactivity in such a sense as to make all substances radioactive misses the whole point of the concept of radio-

activity, because in case of such a generalization we would still have to hold that different substances are radioactive or telepathic in very different ways, thus bringing the distinction in through the back door. As regards accounting for mass, again, the mind-stuff theory could probably make as plausible a case as the electrical. We have seen how the sense of mass varies with filling and movement in the case of both visual and tactual sensations, and how it can be generated by velocity in the case of sound. And as for analogies, without respect for evidence, the panpsychists no doubt have the electricians beaten. Behavior, resembling sensitive behavior and even purpose, has been pointed out, not only in the case of organic structures, but in the reactions of inorganic structures, such as the striking phenomena of the chemistry of crystals. Analogies, therefore, would not be lacking on the psychological side.

Whatever poetic charm such a theory of mind-stuff has, it does not help us one whit in meeting the variety and stages of process; and while we must insist that there can be no simplification or classification which does not take into account and make central our purposive energies, yet it does not follow that we can regard reality through and through as purposive energy. We would have to introduce differentia, which would make the supposed voluntaristic substrate a mere word without real meaning. If the materialist has been wrong in reading up, the idealist may commit the same mistake in reading down. So far from this reading down ensuring the place of mind-energy in the universe, it would dissipate its meaning and make spiritual energy indistinguishable from material energy, as in either case the lower will be identical with the higher. This is equally true of Spinoza's "thought," Hegel's "absolute," and Schopenhauer's "will." The failure of materialistic and spiritualistic monism is essentially the same—the failure to discriminate and to meet the differences that we must meet in adjusting ourselves to a universe such as ours, with its complexity and multiform stages. Materialism has been at least as extravagant in its play of imagination as spiritualism. Natural science with its Faraday tubes, its atomic bonds, its affinities and its repugnancies, its thread theories, etc., can at least rival Hegelianism in the realm of fiction. It is safer to stick to the facts and to insist upon spiritual energy where we find evidence of spiritual energy; and at the same time follow the lead of the facts in insisting that spiritual energy can make a difference to the simpler forms of energy, and they to it, whatever in the last analysis these simpler forms may be. All the facts go to indicate continuity within our world; but that is a different thing from identity. About the metaphysical nature of the simpler forms of

energy, we must confess ourselves agnostics, however skilful we may become in their phenomenal prediction and manipulation.

One thing is certain, and in this spiritualistic monism will always have the advantage over any material monism, that purposive energy is the *Urstoff* so far as knowledge is concerned. This purposive energy can not be analyzed or decomposed into sensations, as some have supposed, for sensations themselves are the artificial products of analysis, the abstractions of this purposive will for its own ends. For the will, therefore, to resolve itself into sensations would involve a hopeless circle, a deliberate suicide. With reference to our conative tendencies, the variety of the world, spiritual or material, must be differentiated and systematized. Whatever scheme of stuff we adopt in the end, it is, after all, merely a spreading out of our world for the convenience of the purposive moment. Nothing could be more absurd, therefore, than to regard this purposive energy as an epiphenomenon or as derived in any sense from other energies. On the contrary, our purposive meaning is the only thing which can be known as final. The consciousness of what we are, when we can take account of our own stream of processes, is the only first-hand access to the inwardness of reality. The unity and reality of this purposive moment, therefore, must be regarded as its own vindication. Doubt it and you none the less vindicate the reality of this activity, which can set its own problems and, in a measure at least, solve them. It is this unity of meaning which furnishes the indispensable condition for such coherency and system as we, finites, are able to discover. To make this fundamental insight of conscious experience itself a derivative from chemical changes, shows, on the one hand, a complete ignorance of psychological analysis from Augustine and Descartes down; as it shows, on the other hand, the dogmatic bias of men who, like Ostwald, work in a certain physical field, forgetting that the laws and the unity of the very energy they seek must, in the first instance at least, be the shadow projected upon nature by the reflective moment. This furnishes the undying inspiration for the search for the unity of things.

Modesty, as regards assumptions, would seem to be the final word both as regards the natural scientist and the philosopher. Let us not be misled by the passion for simplicity into supposing that wherever there can be interaction or where one energy can make a difference to another, there must also be substantial identity. Let us be thankful for the brilliant advance in science, which has reduced such seemingly disconnected fields as light and magnetism into terms of electricity; but let us stick close to the facts and acknowledge such differences in the nature of things as the facts demand. Only in this way shall we have workability of hypothesis. The rest is the

poetry of science, interesting amusement for the idle hour—sometimes, perhaps, prophetic of greater victories to come.

For classificatory purposes we might, perhaps, group the different energies into three fundamental groups: material energy, where mass and weight are applicable; electrical energy, including magnetism and light, where we can not apply standards of mass and weight, but where we have less stereotyped conditions; and conative energy, which, like electricity, is immaterial, but which can become self-directive, can have meaning and value. This, however, is merely a convenient classification. It is no causal cleavage, preventing these energies from interacting in nature and forming to that extent one energetic whole.

Such questions as whether there can be action at a distance; whether the cause must be identical with the effect in kind and in time; whether all energy is radioactive; whether the universe can be such a one-way affair as indicated by the second law of thermodynamics,—these questions can not be settled *a priori*, but must be determined by the needs of human experience. I have already indicated the advantage of saving such terms as radioactivity for specific groups of facts. I can not resist the temptation of offering a suggestion or two in connection with the other problems indicated. If we eliminate the contradictory concept of ether, the present status of science would seem to indicate action at a distance; even amongst the electrical charges of the atom we must conceive distances comparable, considering the apparent masses involved, to the distances of interstellar space. No intelligible conception of energy has been able to avoid a certain discreteness of centers; and any medium invented must break up into discrete reactions in order to account for our actual world. There would seem to be no reason, moreover, why space, with its free mobility, should offer any other limitation as regards energetic interconnections than that involved in distance. We seem to be driven, therefore, to an energetic unity of the universe rather than to a one-block theory in order to account, at the same time, for its seeming continuity and diversity.

As to the question of cause and effect, I think I have indicated sufficiently that in order for one set of changes to give rise to another set of changes there is no need of their being identical. Chemical changes do seem to give rise to nerve changes, nerve changes to conative processes, without any need of supposing that bread-stuff is mind-stuff. But we can no more assume that cause and effect must be identical in space and in time than in kind. As I have already said, there would seem to be indications of action at a distance; and if this is the case, there must also be a difference in the time of the cause and the effect. Let us leave out again the fictitious ether,

which, in the words of Poincaré, "if it is able to explain everything, this is because it does not enable us to foresee anything; it does not enable us to decide between the different possible hypotheses, since it explains everything beforehand. It therefore becomes useless."⁴ Take, for instance, the connection of a charge from one electron to another. "The perturbation is propagated with a finite velocity; it, therefore, reaches the second electron only when the first has long ago entered upon its rest. This second electron, therefore, will undergo, after a delay, the action of the first, but will certainly at that moment not react upon it, since around this first electron nothing any longer budes."⁵ To use a more concrete illustration from the same author. Take a Hertzian oscillator, like those used in wireless telegraphy: "If all the energy issuing from our oscillator falls on the receiver, this will act as if it had received a mechanical shock, which will represent in a sense the compensation of the oscillator's recoil; the reaction will be equal to the action, but it will not be simultaneous; the receiver will move on, but not at the moment when the oscillator recoils. If the energy propagates itself indefinitely without encountering a receiver, the compensation will never occur."⁶ I will not enter into the intricacies of mathematical science; but one thing seems certain, that the question of the relation of cause and effect can no longer be settled *a priori*, but must be settled by experimental evidence. To say that the cause *must* be identical with the effect is as unscientific as that the heavenly bodies must move in circles, these being the most perfect figures; or the universe must be a sphere for the same reason.

As regards the theories of a one-way process of the universe as a whole, which is implied in the second law of thermodynamics and in Spencer's famous formula of evolution, as a passing from the homogeneous to the heterogeneous, with the corresponding dissipation of motion, I can not help thinking that the ancient Greeks, in spite of their inferior tools, show a superior imagination. Any theory of the universe based upon a one-sided process, such as the degradation of energy, must assume a finite creation or beginning, in some way; for, if the universe as a whole has no beginning, then any finite process, such as the second law of thermodynamics indicates, must have run its course countless ages ago. The universe must have become stark still; all matter must long ago have become integrated with the corresponding dissipation of motion. The logic of such a theory was long ago expressed in the words of Empedocles: "For if they (the elements) had been passing away continually, they would not be now."⁷ Such generalizations, therefore, we must regard as

⁴ *Popular Science Monthly*, Vol. LXX., No. 4, p. 348.

⁵ *Ibid.*, p. 347.

⁶ Line 90, Burnet's translation.

one-sided, though useful makeshifts, considering our ignorance of the total process. That the running-up process may be going on in connection with a running-down process, that motion may be converted into heat, and heat converted back into motion, seems to be illustrated by the recent discovery of the Brownian movement. This may at least serve to break through our scientific dogmatism.

To describe the real world, moreover, with its interactions and its history, we need more than energetic constancies. It is a mistake to suppose that *being*, which we have seen must be understood as processes, is the only attribute of reality. We need space and time, as these processes vary with the time and the distance and are unintelligible otherwise. Without time and space, energy would be congealed—frozen process. We, therefore, must add these as additional dimensions or independent variables of reality. We also must add consciousness as a dimension, since at least part of the behavior of things is conscious behavior, and we have found it impossible to derive consciousness from the non-conscious or to state consciousness as energy. Reality, also, in its motley complexity of changes must possess direction, must have a certain objective form; else all meaning and validity become impossible. This objective form must determine the permanent worth and survival of the finite forms or purposes, individual and social, which arise in evolution. And if they fail to conform or fit in, we may suppose that they are destroyed as forms and that the energies which they held are thrown again, to use a figure from Ibsen's "Peer Gynt," into the ladle of the button moulder to be fashioned into new forms.

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ORGANIC SENSATION AND ORGANISMIC FEELING

THE psychology of attitude is at last getting its right of way. Atomism and psychical chemistry are going the way of mental faculties of the pigeonhole order. Even the biological fashion in our science, useful as it is, must subordinate itself to a psychology of character, a psychology of the whole man. And the study of mental attitudes, trends, tendencies, and the like, will help us to combine "structural" and "functional" and all the other interesting abstract phases of individual unitary character.

In the light of present psychological thought, first-hand accurate data about changing and conflicting mental moods should not come amiss. Hence the following slight study of moods, caught in the act of conflict and change, ought to have a representative value.

As in previous studies of this sort,¹ here, too, the description of the mental states will be kept rigorously free from the writer's comments.

I

Merriment was in the atmosphere. We four grown folk had raced down the hill to the lecture hall as blithesomely as the children in front of us. Some amusing things had happened on the way, so that we were vibrating with suppressed glee as we demurely settled down into our seats.

We had heard the speaker often before, and had enjoyed many a contagious, but furtive, chuckle because of his mannerisms and peculiarities of speech and diction. And he outdid himself that day! Once or twice recently he had unaccountably forgotten one or two of his stock expressions and cant phrases, but on this occasion he promptly brought out his full assortment. I am ordinarily accustomed to behave myself decently, but I find myself this morning quivering with latent vibratory spasms of smiling—inside smiling, that tries to externalize itself into unrestrained laughter. But the usual motives prevent even a fair-sized smile from showing itself. I know that the corners of my lips are being more tightly compressed than is natural to sedate and seemly dignity. But I keep control of myself, and with sufficient ease to enable me to note my experiences carefully.

I have, to a great extent I *am*, a state of diffused suffusion. A sort of gentle, twittering, ticklish, vibrating glow possesses me. Occasionally my diaphragm incontinently wants to heave, breathing tends to become irregular, and the twitching at the corners of the mouth becomes hard to control. But in proportion as I keep down these conspicuous tendencies toward expression, do I preserve the pure mood that can hardly be called pleasurablely toned, for it is pleasure. As the "feeling" begins to overflow into my big muscles and into the facial muscles of expression, I am conscious of a thickening turbulence of mind that destroys the pure being of the pleasantness. So long as I can without effort prevent an expressive outbreak, the calmly passive and receptive sensitiveness of the mood persists. When I succeed in maintaining the calmness of the mood in spite of some new incongruity in the speaker's utterances, I realize that the pleasure is heightened and that the path to outward expression is blocked. From time to time a diaphragmatic spasm tries to break up the smoothness of the mood, especially when I am conscious that my companions must be amused at the *gaucherie* of the speaker. But a sympathy for that individual, apparently based

. ¹ See this JOURNAL, Vol. III., pp. 435, 708; Vol. IV., 337.

and I wonder how it seems to arise in its might and discipline the small-boy's passiveness that makes me want to laugh with my comrades and not at them. I dare not look at my fellow sinners: I am sure that they are feeling as I do and that they, in turn, dare not look at me.

Instead of being a victim of a cool and aloof hedonism, when a group of young men rather noisily stamp out of the room. With spontaneity and celerity a new mood comes on. The pleasurable ticklishness ceases, the calm pleasurable softness comes to an abrupt end. I note—a second sensation—the breathing has become altered, that the diaphragm is contracting spasmodically, but evenly and securely, that the muscles of the mouth are in firm action, that the teeth are slightly bared, that a frown has come to the brow. What pre-occupied considerations to which I have yielded quite freely? First, the realization of the boys going out; second, the realization that the speaker is grossly discourteous, *along with an "all-over feeling" of tension, which seems to be spreading to particular parts of the body*; at the same time, remarkable fact that one's mind is so busy with its own operations, and these, too, of an emotional kind. Perhaps long practise has facilitated this internalization of feelings. Perhaps the aloofness attained in the previously dominant mood has helped me to catch the new mood so readily. Evidently I am indignant, and at the same time studying my indignation. Introspection seems to me such a real process that my mental attitude toward the denial of the possibility of internal observation is like that of the old Scotchwoman's mental posture, when she said, "I am open to conviction, but I'd like to see any one that could convince me!" However, these last remarks about introspection do not belong to the story, although passing wonder at the fact of introspection did come upon me at this stage of the game.

The new mood reforms me, for I find myself listening to the speaker and managing not only to follow him, but to gain from him some suggestions of real value. Indeed, I am conscious of distinct exaltation of mood as well as an inclination to perceive and think with the utmost clearness. Calmness has returned, but it is more like the "quiet" of Browning's Caliban than the cool passivity of the first mood. From time to time the speaker says something that ought to rouse the previous mood; but *that* game is played out, though I am conscious of faint twitters and spasmodic quivers from time to time. The internal sensations seem to be supersensitive, but are now rather acute than massive, more definitely localizable, and less indicative of an "organismic" reaction. And so it comes about that I, who was beset at the beginning with a mood first cousin to

scoffing, remained to think seriously about the higher realities and idealities; and perhaps such an attitude is akin to prayer.

II

The first mood is unquestionably affective and of the pleasure-pain order. And does it not seem likely that in this case, at any rate, the crude stuff of pleasure is diffused, undifferentiated organic sensation? The after-flashes of organic hyperesthesia indicate that there had previously been a decided waking up of the internal periphery. The original mood seems to have had on its side the help of relations of congruity (perceptions of incongruousness), but had opposed to it the larger habitudes of propriety and respect, controlled by continuity relations of the larger "character" sort. Besides this relational aid, the forces opposed to the "tickled" mood seem to have had another relational ally, community relations that led auxiliary forces in favor of sympathy with the speaker, who was the unconscious cause of merriment. The real moving forces that give significance to the sensational and relational machinery appear to be certain impulsive tendency groups. The "merriment" group is at once egoistic and expressive (sense of humor). It is aided by more or less of superficial responsiveness and gregariousness, due to the *en rapport* between the observer and his friends. Opposed to this set of impulses were two others. The first might be called the ethical group, and has ingredients esthetic (good taste, tact), domestic (kindliness and loyalty), religious (reverence and respect), and the like. The second group opposing the hedonistic mood we may call scientific, for it was the motive underlying the introspective work done. While the scientific tendencies did not engage actively on the side of higher altruism and egoism, by their very presence they helped to tame and control the spasmodic and hysterical nuances of the mood of fun.

The second mood—that of indignation—is evidently muscular and emotional. Here we find muscular sensations functioning in diffused form as the raw material of the emotional direction of feeling (expansion, contraction, tension). The close affiliation of emotion with volitional activities seems to be indicated in this second mood. Indeed, while it would be proper to say that all three of these attitudes were affective moods, and good examples of them, nevertheless we may call the first affective *par excellence*, the second, volitional, the third, intellectual. The sustained endeavor superinduced by the second mood facilitates the coming on of the third mood of exalted perception, assimilation, and reflection.

The third mood shows us the third direction of feeling, sensi-

tivity-feeling (somesthesia: exaltation and depression). And it is interesting to note how this phase of feeling fits in with intellectual work, continuous attention, high-level interest. In this, as in previous studies already referred to, we find a sort of rhythmic circularity of affective phases, in which the dominant affective direction of this third mood—sensitivity-feeling—is highly intellectualized and usually unobtrusive. May it not be that when we are thinking our nervous activity is definitely related to the region of specialized sensation memories, and that, therefore, there is ordinarily little overflow of somesthesia? When a new thought occurs, possibly its sensational (image) content is unfixed, and what afterwards becomes associated imagery (words or what not) first functions as a lifting of the general level of the *cœnesthesia*, and especially of sensitivity-feeling.

Perhaps the most striking fact about the whole episode is this: the resemblance of the pleasurable mood to ticklishness; the localized and sensational supersensitiveness of the final mood and the organismic, affective hyperesthesia of the first mood; the interesting parallel of external and internal *sensation* of "tickling" as contrasted with the *attitude* or affective mood of "ticklishness."

III

Since the foregoing was written data have come to hand whereby an explanation may be hazarded of the ease with which the phases of sensation and feeling were studied introspectively. In the afternoon of the day on which the episode occurred, the observer found himself threatened with an attack of influenza. Though the attack was abortive, proof was given that on the occasion that gave rise to the conflicting moods the observer's peripheral nerve extremities in skin and mucous membrane, in joint and muscle, were in a hyperesthetic condition. The increased sensitiveness brought about experimental conditions of a slightly pathological kind.

If, then, as appears practically certain, the morning's mood was throughout peripherally conditioned, one is tempted to speculate a little, in the light of this case, as to the relation of sensation to feeling. The writer may be allowed to make a few schematic assumptions as to psychical first things. Taking the reflex arc as our analogical guide—without making any further claims—we may indulge in a few categorical descriptive statements. The three analytically separable, but not actually separated, aspects of consciousness are sensation (stimulus), relation (association), and impulse (reaction). Let us symbolize these as *S*, *R*, and *I*. Then, the formula for intellectual states *par excellence* would be *RSI* and

RIS; for volitional states, *IRS* and *ISR*; for affective states, *SIR* and *SRI*. *RSI* we may call affective intellectual, and *RIS* volitional intellectual; then, *IRS* would be intellectual volitional, and *ISR* affective volitional; *SRI* would be intellectual affective ("higher feelings"?), and *SIR* volitional affective ("coarser feelings"?).

If this crude nomenclature be provisionally accepted, I should say that the first mood in the episode described above (that of subdued merriment) could be called *SIR* changing to *SRI*. That is, relational control put the impulsive expressive element in the background. The second mood would be *SRI.SIR*; but in this case the *S* is kinesthetic, whereas in the first mood it was cœnesthetic or "organic" (organismic). In the third mood, *SRI* comes back again, but *S* is here somesthetic (epiperipheral sensitivity) and is tending to recede into the background in favor of *RIS*—voluntary attention.

So my thesis for this and similar cases may be put thus: Diffused, unlocalized "esthesia" determines affective moods. Relationized quality-content is material for perception and for intellectual states in general. In other words, when "quality" is in the functional foreground we have the sensation-in-time-and-space, perception; when "intensity" is dominant, we get "feeling," which may take either an impulsive or a relational direction. This last statement will remind my readers of Stout's account in *Mind* of Herbart's "presentative activity" and "presented content." Well, perhaps Herbart's "mythology" had a real basis in the fact that a sensation not only "stands for" something, but also "does" something. Indeed, the formula for every phase of consciousness is always some arrangement of *S*, *R*, and *I*. Returning to our original story, I should say that the diffused, organismic sensation-*feeling* of the mood of merriment (pleasure) is to be contrasted with the localized, organic sensation-*perception* of the last mood, when more or less localized and circumscribed "thrills of tickle" manifested themselves. So while I would not claim that pleasure is to be identified with tickling-sensation, I should suggest that tickling, whether outer or inner, is one form of organic sensation, which in its *diffused* form gives phases of pleasantness or unpleasantness, according to the condition of the organism, and in its *localized* form gives perception with a more clearly defined qualitative content. But what about physical pain? Our hypothesis answers this question. There are nerves of "common sensation" in the skin. When the stimulation of these "organic nerves" (for the skin has visceral functions) comes within certain medium limits, the result is pleasure, provided the condition of the cœnesthesis, the organismic *tout ensemble*, is appropriate. When the stimulation is defective or redundant, organic tissue suffers, and the resulting cœnesthetic dis-

turbance is felt as pain. Of course, "localization," "peculiar qualities," "local signs," and the like, are indications of perceptive synthesis—*R* is subordinating *S*, or is at least of equal importance. Now the phenomena of tickling and such cases as the one we have been studying bring out clearly the many possible varying shades between perception and feeling. Not strange is it that common language uses the word "feel" in both senses, and that psychologists are divided in their views as to the "sensational" theory of pain.²

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SOCIETIES

SECTION OF ANTHROPOLOGY AND PSYCHOLOGY OF THE NEW YORK ACADEMY OF SCIENCES

REPORT OF THE SECRETARY

A MEETING was held in conjunction with the New York Branch of the American Psychological Association on April 27, 1908. At the afternoon session, which was held in the Psychological Laboratory of Columbia University, Professor R. S. Woodworth presented a report on "Imagery of Time Relations," in which he noted the disproportion between our rich supply of time concepts and our meager perceptual experience of time, and proposed to test the hypothesis that time concepts were really composed of spatial concepts or images suffused with a temporal feeling. Mathematically, time can be represented by a point, or better a line or plane, moving along a line or axis, the present being any chosen position of the moving point, the past to the left, and the future to the right. All units and relations of time could be accurately represented in such a scheme. On examining a considerable number of persons, he found that such spatial representations of time occurred, though seldom, if ever, in a mathematically consistent form. Spatial forms for the year, as well as for the centuries, and for past and future, were not uncommon, being apparently considerably more common than the somewhat similar "number forms," though often less dis-

²My companions in merriment give unqualified and even enthusiastic endorsement to the description given above of the first mood of "being tickled." Inasmuch as they are well-educated and healthy individuals who have never studied psychology, I am inclined to think that their testimony has decided value, though they do not claim to have tried introspection on this or any other occasion.

tinct and less clearly conscious. But such time forms are not universally present; they have been found in about half of the forty individuals so far questioned. Of those who do not have them, some think of time concretely, *i. e.*, in terms of events or changes; while others employ what seem to be purely abstract concepts of time.

Mr. H. H. Woodrow made a report on "Reaction Time as Influenced by the Irregular Recurrence of the Stimulus." The object of the report was to show that reaction times for regularly recurring stimuli are considerably less than for irregular, providing the interval between the regularly recurring stimuli is not too long. As regards the effect of the interval, it was found that if the stimuli were irregular, there was very little difference in the reaction time for intervals varying from 0.8 sec. to 10.0 secs., while if the stimuli were given in regular succession the reaction time remained nearly constant for intervals from 0.8 sec. to about 4.0 secs., but increased with intervals longer than 4.0 secs.; and at 7.0 secs. was nearly as long as for totally irregular stimuli.

Professor Will S. Monroe presented the results of his experimental work on "Memories for Faces." He has used photographs as the material to be remembered, and by varying the conditions has determined several of the factors which contribute to the remembering or forgetting of a face once seen.

Professor Edward L. Thorndike, under the title, "Practise in a Purely Intellectual Function," reported an experiment in which 28 individuals multiplied mentally 95 examples, each consisting of a three-place number with no figure under 3, to be multiplied by a three-place number with no figure under 3. The work was done so as to occupy approximately sixteen days. Measuring the efficiency of the process inversely by the time taken (with an addition for each error of one tenth of the time per example) it was found that the median improvement for the 28 individuals was such as to give a reduction to 42 per cent. of the initial time. Some individuals improved two and a half times as much as others. The physiological limit for the function in question was, of course, not reached by any one in so short an experiment, but one individual, and possibly another also, did reach a point from which, within the limit of the experiment, no further improvement was made. The apparent differences in the change of rate of improvement were very great. On the supposition that the change of rate of improvement was due to one general law plus disturbing factors, Dr. Thorndike showed what this law would be on each of the two most likely hypotheses. The variability amongst individuals increased in the course of the experi-

ment, at least so far as concerns the differences between the upper quarter and the lower quarter of the 28 individuals. It would appear, therefore, that the experiment offered evidence that the influence of the environment is to accentuate rather than relieve initial inequalities of intellect. The experiment also offered evidence that within the field of so-called attention the influence of improvement in one mental function spreads little to other functions than it.

After dinner at the Faculty Club of Columbia University, an evening session was held at the American Museum of Natural History, the first paper being by Dr. H. A. Carr on "Involuntary Illusions of Depth." The paper gave a descriptive account of 48 cases gathered from a census of 350 students. The phenomenon consists of illusory transitions of the distance location of visual objects in the course of normal experience. The most pronounced fact was the lack of uniformity. The experiences were described under such headings as the kind of illusion, extent of visual field involved, character, direction, magnitude and rate of movement, changes in size and distinctness of the perceptual objects, degree of control possible, and such essential conditions as fatigue, mental absorption, ocular defects, steady fixation, etc. No explanation was attempted.

Dr. H. D. Marsh, speaking on the "Psychological Implicates of Certain Linguistic Expressions," showed how the study of the frequency of occurrence of sweeping terms, extensive and intensive, in diverse writings, could be made to yield valuable "internal evidence" regarding the authorship, and especially regarding personal and social characteristics. The intensive series of words included such positives as all, every, always, whoso, whatsoever, etc., and such negatives as no (adjective), none, nothing, no more, never, etc. The frequency of these words per 1,000 lines was determined for practically every book of the Bible, and it was found possible, with this single series of words, to follow most of the conclusions of the "higher critics" regarding disputed writings, both as to whole books and as to parts of books; and this with a high degree of reliability. Supplemented by an intensive series, this method would apparently work well.

A comparison of the first ten books of the Old Testament with the longest ten in the New Testament showed 33 per cent. more positives and 50 per cent. less negatives in the Old Testament. The following interpretations of this difference are suggested:

1. Biologically, it means lower *vs.* higher development, doing *vs.* thinking, prophet and law, warrior and deed in the earlier period *vs.* teacher and preaching, thinker and doctrine in the later period.

Faith, the product of bodily action, tends to exaggeration by positives; while doubt, due to mental activity, tends to exaggeration by negatives.

2. Sociologically, it means great social solidarity *vs.* relative individuality. The Hebrews, as selected and protected by Almighty Jehovah, developed a strong national pride and unanimity of thought and action; and this "crowd-spirit"—in the scientific sense—accounts for many irresponsible generalizations, since their prodigious national pride "not only idealized but magnified the past" in many references to it.

3. Psychologically, it means spontaneous imitation *vs.* intellectual initiative. Imitation tends to exclusions of negatives, while increasing intellectual horizon brings questionings and oppositions to accepted views. Sections rich in positives, as the writings of Paul and the first twelve chapters of Joshua, often indicate strong individualities, men of unrivaled force of character, of energetic action against great opposition. The masterful man in deed is likely, we infer, to put things strongly in expression.

Professor A. C. Armstrong discussed "The Idea of Feeling in Rousseau's Religious Philosophy." He remarked that Rousseau's religious philosophy was based on inner sentiment. The *sentiment intérieur* is subjective in the sense of individual and in the sense of inward. From both its individuality and its inwardness proceeds its certitude—which Rousseau highly values—and which depends also on a farther characteristic, the immediacy of the "inner light." Nevertheless, the *sentiment intérieur* is not exclusively affective in its nature, and when purely emotional, may vary through a wide range of affective experience. At its lowest level it amounts to the satisfaction of desire by religious ideas and principles. Or it may become shallow sentimentalism, as in the second half of the *Nouvelle Héloïse*. A third and higher stage is the phase of pure religious aspiration, while in a fourth form it develops into an appreciation of religious values. This evaluating factor in Rousseau's religious thinking has been neglected; but it can be shown by quotation from many of his writings. In general it is evident that the idea of feeling in Rousseau requires careful analysis before well-grounded inferences can be drawn from his doctrine concerning either psychological or historical or constructive questions.

Mr. Max Eastman read a paper on "The Pragmatic Meaning of Pragmatism." The thesis of the paper was that pragmatism, in intellectualist terms, is skepticism with its logical consequences developed; and in pragmatist terms, the rejection of metaphysics as a serious discipline. This was shown to be consistent with the origin

of pragmatism in the biological attitude, which was developed in the writings of such philosophic scientists as Huxley and Clifford. It was then shown that as a dialectic implication of Mr. James's definition of meaning, metaphysics proper becomes not the most divine science, but the most meaningless science. It was stated that his failure to grasp this negative aspect of his definition is what gives obscurity to the whole contents and procedure of his book; it is what gives rise to the technical error of thinking that pragmatism is a confused and unthinkable theory, and the popular error of thinking it is a philosophy which consists in congratulating yourself upon your own prejudices.

In conclusion it was stated that the difference between the position of Professor James and that of Professor Dewey is chiefly this: that Professor Dewey understands the new definition of meaning to be a limitation of it and therefore a limitation of the field of serious inquiry, while Professor James does not. Professor Dewey endeavors to be consistently a pragmatist, while Professor James is satisfied with being simply pragmatic, as by the pragmatist's hypothesis we all are.

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REVIEWS AND ABSTRACTS OF LITERATURE

L'orientazione psicologica dell' etica e della filosofia del diritto. A. BONUCCI, Perugia, 1907. Pp. viii + 378.

Dr. Bonucci was already known to students of the philosophy of right as the author of "La legge comune nel pensiero greco" (1903) and "La derogabilità del diritto naturale nella scolastica" (1906), in which he had shown himself well qualified for treating historical problems. In tracing the origin and evolution of juridical doctrines of ancient and medieval thinkers he is painstaking, clear, and accurate, going to the original works themselves. In the latter work above-mentioned he shows that medieval thinkers were largely occupied in considering whether it were possible for God to break the natural law, and in showing how such a transgression, which, as coming from God, was necessarily just, ought to be regarded as just. He also shows that they saw clearly the problem of relative ethics together with the problem of absolute ethics, when they tried to determine whether in certain cases a transgression of the natural law by man could be just as answering to the necessities of practical life. Aristotle—especially Book V., of the Nicomachian Ethics—the principles of Roman law, certain passages of Scripture, and the consideration of practical needs were the sources of the problem of derogating from the law of nature.

Much less satisfactory is the critical part of the work. Not only has

the author no precise standard with which to measure the value of the doctrines expounded, but a philosophical interpretation of them is wanting; they appear often detached from the general system of ideas of the thinker and of the age. The author seems to be crushed by the quantity of his material. It has seemed proper to take into account these earlier publications of the author, because in the present work the same defects reappear, and are the more noticeable as the author abandons the historical field and attempts an independent treatment of a special problem in ethical and juridical philosophy. Even here the great mass of literature consulted by the author, and the extraordinary number of references, are remarkable, but all this erudition is more apt to confuse than to enlighten.

Dr. Bonucci rejects the usual distinction between practical and theoretical science. The so-called practical sciences simply point out, he says, certain relations between causes and effects which man, by a natural necessity, must take account of if he will obtain certain ends; but they do not prescribe the ends. Consequently there is no difference between practical and theoretical science, because the former, as well as the latter, gives only knowledge. But, if it is right to abolish the common distinction between the knowledge of nature and the knowledge of morality, it would be absurd to exclude from the field of ethical inquiries the study of the ends of human conduct and of the natural causes. Moral ends depend not only on our subjective feelings, but on our human nature. From this point of view, ends are an objective reality; they do not contradict the law of causation, but are the necessary effects of individual and social life. The exclusive application of the psychological method, as carried out by Dr. Bonucci, is the bankruptcy of ethics as a science. Moral ideals have a meaning only in relation to man, but man is not made only of subjective feelings, of continually changing states of consciousness. There is his human nature and his social environment; and in the fundamental characters of his nature and the general conditions of his existence are to be sought the content, the determining causes, and the justification of moral ends and ideals, which come thus to have a supreme objective value, transcending the mere subjective acts of valuation of the individual conscience. The denial of these objective elements in morality is the denial of morality itself.

Dr. Bonucci tells us that right, the subjective right, has no meaning apart from law. "The juridical norm is the expression of a supreme will directed towards an act, a human act." This supreme will is represented by the state, which implies the subjection of individual wills, but the state follows no particular standard in requiring a particular conduct from the community. What the ends of the state are remains obscure. What is a matter of feeling can become law, and what is law, imposed by the supreme will, can be abandoned by the state and given back to the individual conscience. As it is impossible to found ethics on mere feeling, it is equally impossible to found philosophy of law on mere will. Here, too, we must find a way out of the stream of merely subjective states of consciousness if a scientific position is to be attained.

La pellagre. A. MARIE. Paris: V. Giard & E. Brière. 1908. Pp. 3 + 252.

In this little work, which is the second volume of a series on social hygiene, the author considers the causes, signs and prophylaxis of pellagra. Pellagra is a disease of the nervous system characterized by degenerations of the nerve elements, by many profound changes in the functions of the skin, the alimentary canal, lungs, heart, etc. In severe cases the physical condition resembles that found in paresis, and the mental changes are similar. The disease is said to be caused by eating quantities of damaged maize. The fungi or smuts that infest the grain have been found to be harmless to animals and man and it appears probable that the disease is due to the toxins which are formed in the grain by the action of *sporisorium maidis*, *penicillium*, *oidium lactis maidis*, and numerous bacteria. Extracts of the damaged maize when injected into animals gave results similar to those of strychnine.

For the psychologist the important aspect of the disease is the mental side. It has already been said that in severe cases the mental symptoms simulate paresis. In the milder cases there are found: increasing irritability; failure of memory; transitory stupors with mutism, followed often by active delirium; stereotypies; hallucinations of hearing and vision, the latter often terrifying; fixed ideas of despair, fear, anxiety, persecution, poisoning, damnation, possession by devils or sorcerers; and tendency to suicide. There are many remissions in the course of the disease and some of the patients are cured.

In America there have recently been reported two cases in the southern Atlantic states, and it is probable that many more have not been recognized on account of the supposed rarity of the disease in this country.

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JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. May, 1908. *The Objectivity of the Moral Judgment* (pp. 249-271): F. C. SHARP. - The moral judgment will be objective if it always and necessarily makes a claim whose validity can be determined by an appeal to facts. The moral judgment does make such a claim. *Self and Soul* (pp. 272-280): MARY WHITON CALKINS. - The self of philosophy is an immediately known and reflected-on reality. The affiliation between self and soul is obvious. The traditional soul doctrine suffers from conceiving soul after material analogy or as mere negation corporeal characters. *The Factual* (pp. 281-290): WALTER T. MARVIN. - "Are there judgments of which 'the factual' forms the complete warrant; and if so, how are these judgments related to the remainder of our knowledge?" The factual is what warrants an absolutely particular judgment. Factual judgments are starting points in

the discovery of truth. *Philosophy in France* (pp. 291-315): ANDRÉ LALANDE and EDOUARD LE ROY. — The movement of Couturat and Poincaré continues chiefly as pedagogic reform. From the naturalists have come "Le monde végétal" by Bonnier, "Les transformations du règne animal" by Depéret, "Histoire de la terre" by de Launay and "Éléments de philosophie biologique" by Le Dantec. These provide a natural background for Bergson's "L'évolution créatrice." The other philosophical work of chief consequence is Hamelin's "Essai sur les éléments principaux de la représentation"; it expresses the Kantian tradition as modified by Renouvier. The liberal Catholic movement is producing much in the way of church history, history of dogma, exegesis, philosophy and psychology of religion. The attempt to revive the scholastic philosophy has failed. *Reviews of Books*: Wilhelm Wundt, *Völkerpsychologie*: H. N. GARDINER. F. C. S. Schiller, *Studies in Humanism*: HENRY BARKER. W. Mitchell, *Structure and Growth of the Mind*: NORMAN SMITH. *Notices of New Books. Summaries of Articles. Notes.*

Seashore, Carl E. *Elementary Experiments in Psychology*. New York: Henry Holt & Co. 1908. Pp. ix + 218.

Sharp, Frank Chapman. *A Study of the Influence of Custom on the Moral Judgment*. Bulletin of the University of Wisconsin, No. 236. Madison. 1908. Pp. 144. \$0.30.

Teubner, B. G. *Verlag auf dem Gebiete der Mathematik, Naturwissenschaften und Technik nebst Grenzwissenschaften*. Leipzig & Berlin: B. G. Teubner. 1908. Pp. cxxxi + 392 + 92.

NOTES AND NEWS

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

GENTLEMEN: I desire to make this brief statement of the aim and contents of my "Principles of Pragmatism," which is about to be published.

The most significant fact in recent philosophy is the conscious demand for a reconstruction of its method—not merely a patching up of the existing machinery of reflective thought, but a fundamental reconsideration of its whole purpose and procedure. This reconstruction implies:

1. The breaking down of the customary division of philosophy into theory-of-knowledge and theory-of-reality, and the treatment of these as phases of a general theory-of-experience. The course of discussion in the past few years between the leading schools of thought has made evident the need of a new statement of the issues involved. Neither idealism nor empiricism, neither absolutism nor pluralism, has been generally accepted. The truth must lie somewhere in their uncriticized postulates. The present work is an attempt to set forth the necessary assumptions of a

philosophy which is conceived as itself just method become self-conscious. Thinking is managing experience. Philosophy is method in such management.

2. The synthesizing of the fundamental underlying ideas in a form which the man of average intelligence and education may understand. In these days when the different branches of philosophy have themselves become professions, and the language which they speak has become as unintelligible to the layman as the technicalities of the special sciences, the need of this is obvious. It is the hope of the author that this book will aid in clarifying the meaning of the word "pragmatism" which at the present moment stands for so many apparently contradictory things to the minds of even its professed exponents. It is not the aim to construct a system, but to illustrate the workings of pragmatism as a philosophical principle in setting forth the basal conceptions of the new philosophy of experience.

H. HEATH BAWDEN.

PHILADELPHIA, PA.

FROM Professor Lloyd's article on "Plato's Philosophy as a Meditation on Death" in the July number of the *Harvard Theological Review*, we take the following: "Plato's vision of another world was more than an interesting pagan anticipation of the Christian belief in heaven. So to view it would be to make it only accidental or miraculous; a result that would neither bring credit to Plato nor deepen the truth of Christianity. It was indeed an anticipation, but also it was Plato's own answer to, his very natural defense against, that blindly obstinate, brutally selfish; ingenious, but not genuine, conservatism of his time. His other-world realism was relative to the persistent unrealism at Athens. It was, again, just his cry of victory, his triumph over the despair, deeply evident to him, of Greek civilization."

THE July *Century* contains an article by Professor Ladd on "The Business Morals of Japan." It is an attempt to estimate the charge that the business morals of the Japanese are of a relatively low order, and makes the following statement about the teaching of ethics in Japan: "In all the government business colleges and schools of commerce the study of ethics now forms one of the principal topics of the required course. Indeed, from the primary grades of the public school to the graduate classes of the university, morals is one of the subjects most insisted upon in the national system of education."

THE Athens correspondent of the London *Times* reports that two archeological discoveries of considerable importance have been made. The excavations carried out in the Altis or sacred precincts of Olympia, near the great altar of Zeus, under the superintendence of Professor Dorpfeld, have resulted in the discovery of interesting remains of the Neolithic period, including house-vessels and implements. Thus it is evident that Olympia was a place of human habitation more than two thousand years before Christ. In Sparta the members of the British School have brought to light a large number of interesting terra-cotta figurines of the fifth century before Christ.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE PART PLAYED BY CONSCIOUSNESS IN MENTAL OPERATIONS

THAT each consciousness is to itself a unity has long been recognized. It has also been understood in a general way that consciousness helps to coordinate and unify cerebral activities. It has, however, been often disputed whether attention may be given to more than one process at one time. This question is transformed by investigations of cases of double consciousness and by recent controversies regarding the subconscious into that of whether there can be two separate unifying consciousnesses acting at the same time in the same brain. The case reported by Dr. Prince in this JOURNAL, of January 30, may very well serve as a test case for deciding these disputed points and for determining the real part that consciousness plays in mental operations.

In this case it appears that two rather complex operations were performed at the same time and, according to Dr. Prince's view of the case, one operation, that of writing a poem, was directed by one unified consciousness designated as *A*, while another unified consciousness, called *b*, was engaged in performing the mathematical operation of computing the number of seconds elapsing between 3:15 and 4:33. Consciousness *A*, according to its own testimony and so far as could be observed by others, was fully occupied with copying a poem and knew nothing of the significance of the figures expressing the time which were written on the margin of the paper. Consciousness *b* had, however, been informed that such a problem would be given, and when evoked at the close of the writing of the poem reported at once the solution of the problem. If it be admitted that such a mental operation as solving a problem of this kind can be carried on successfully only under the direction of consciousness, as Dr. Prince seems to assume, then there is no way of avoiding his conclusion that while the ordinary consciousness is seemingly occupying the whole field and doing its work, another consciousness, designated by the term "subconscious," may be directing other operations. If this is admitted the way is open for all kinds of suppositions regarding the performance of operations by a consciousness

separated from the primary consciousness. If, however, such operations may be carried on successfully by the physiological mechanism without the direction of consciousness, then there is no reason to use the term subconscious in the sense of a consciousness directing operations without the knowledge of the primary consciousness.

In the case of acts that have been performed a great many times it is admitted that the physiological mechanism may carry on successfully quite complex operations, with little if any supervision by consciousness. We perform a multitude of acts every day that at one time could be performed successfully only by close attention, while our attention is focalized on something else, and there is nothing more than a marginal consciousness of the familiar operations in which we are engaged, and in some instances even a marginal knowledge of the performance of those operations seems to be absent. When learning to read, consciousness was completely focalized upon the process, but most adults have frequently had the experience of reading a page while intently thinking of some other subject. In the case of many persons almost any process may be so completely mechanized that it can be performed as well or better without attention as when consciousness undertakes to supervise the process. A good illustration of this is that of the short-hand court reporter who, after he became expert at taking down testimony, trained himself to do so while he gave his thought to other matters. He was thus able to take the testimony and at the same time converse with a friend. He gave no attention to his work and yet took down every word with as much accuracy as a phonograph.

Persons who attempt to do two things at once, such as writing a poem and solving a problem, usually find that they can do so with greater or less success. In most persons there seems to be a consciousness of the two processes and the consciousness is focalized upon the most difficult or least familiar of the two processes or it changes from one process to the other whenever the difficulties presented make it necessary. Some persons, however, who have practised doing two things at a time, seem to be able to produce a double focalization within the single consciousness. If the two focalized phases of this consciousness were separated so that one was not marginal to the other, then we should have the condition which Dr. Prince describes as existing in the case he has reported. On theoretical grounds it can not be denied that such a division of a consciousness into two parts is possible. On the other hand, the possibility should not be admitted as an actuality without convincing proof. Evidence from the subjective side, so far as it is pertinent, should perhaps be regarded as conclusive, but if the two states of consciousness are entirely separate, then one can give no testimony

regarding the existence of the other. It is only where one consciousness is marginal to the other that any testimony can be given regarding the existence of the other consciousness. The existence of a consciousness entirely separate from another consciousness must be shown objectively, therefore, by proving that processes not known to the existent consciousness and that could not be performed without consciousness, are actually performed.

It is pretty generally recognized that physiological laws control the association of ideas as well as the performance of habitual acts. The helplessness of consciousness is impressed upon one by the familiar experience of unsuccessful effort in trying to recall a familiar name. Those who persist in trying to recall a name do so by trying to focalize consciousness upon something connected with the name. If they can succeed in focalizing upon something that has been many times associated with the name, the physiological apparatus responds by presenting the name to consciousness. Many persons find that the name is more likely to be presented if they cease trying to bring it into consciousness and focalize upon something else. It is also a common experience to be asked a question and to say that we do not know, and then, a little later, without any further conscious thought upon the matter, suddenly to realize that we do know the answer. Facts such as these, indicating that what is presented to consciousness is determined by physiological processes, are common not only where associations have been formed by previous experience, but also when we are searching for new ideas. In writing an article one holds in mind what he is trying to do and notes the relevance of ideas as they come and directs thought by accepting what is relevant and rejecting what is not. It is not unusual for a person who has been trying to solve a problem in mathematics, science, mechanics, art, or literature suddenly to become conscious of the solution. This may occur when the mind is for the time being occupied with some other subject, and it may occur immediately after waking from sleep. In exceptional cases the solution of the problem has been worked out on paper during sleep, and in others has been presented in the form of a dream. It is not at all unusual for poets and novelists to report that the poem or plot of the novel comes to them ready made instead of being consciously constructed bit by bit.

Such facts as the above indicate that in new as well as in familiar activities the content of consciousness is not determined primarily by consciousness itself, but by the action of the physiological mechanism. It is, however, going entirely too far to say that consciousness has no control whatever over its content. Every one knows that he can, to a considerable extent, determine what the content of his consciousness shall be, however powerless he may be in certain cases.

The manner in which consciousness may do this and in fact the real part that consciousness plays in mental operations may be suggested by a comparison of the physiological mechanism with other machines. It is a well-known fact that a properly constructed machine may be made to perform not only single operations with great accuracy, but a long series of complex operations. The same machine may also be made to do a number of different things by a slight change in its adjustment or the connection between its parts. There is good reason for believing that the brain is just such a machine, with the exception that it is infinitely more complex than any inorganic mechanism, and with the further exception that what it can do is determined not only by its original structure, but also by the changes produced in it by its previous activities. There is every reason to believe that the possibility of performing any mental operation, simple or complex, new or old, depends upon the structure and functioning of the nervous system. Consciousness can not do of itself or cause the nervous system to do anything which its nervous structure does not fit it to perform.

The real function of consciousness, in the performance of mental operations, is suggested by reaction-time experiments. When one prepares to react by a certain motion to a given signal he is very likely to react before the signal is given or in response to some other signal. This would seem to indicate that the apparatus has been set to do a certain thing, and whenever the mechanism is started, by whatever means, it does that thing without direction of consciousness. After it is done, consciousness is aware of the act and knows whether it corresponds or does not correspond to the intention. We see, therefore, that consciousness adjusted the apparatus for the performance of the act and received a report of what was done, but that it had nothing whatever to do with the actual performance of the act. Common experience shows that such adjustment may be made a long time before the act is to be performed. This is true when one says, "When I put on my coat to come home I must do a certain errand," or, "When I see a person I must give him a message." Without any further thought about the matter such adjustments may result in the performance of the act at the proper time. Adjustments may also be effective after an interval of unconsciousness, as when one resolves to waken at a certain signal and do so. Any one by practise will become able thus to respond to a particular stimulus, as, for example, the stirring of a patient, by awaking him; and some persons can do so without practise. It is also true that some persons can set themselves to waken at a certain hour and so with almost as great certainty as that with which an alarm clock strikes at the time for which it is set. Adjustments for more

plex processes are sometimes made by speakers who prepare a speech to be delivered at a certain time and place, and give little or no thought to the matter until the time comes.

Adjustments may also be made for responding to certain stimuli without reference to the time or place when such response is to be given. A good illustration of this is given by John Burroughs. He had become interested in hylas. He says: "One Sunday, walking amid some bushes, I captured two. They leaped before me as doubtless they had done many times before, but though not looking for or thinking of them, yet they were quickly recognized because the eye had been *commissioned* to find them. On another occasion, not long afterward, I was hurriedly loading my gun in the October woods in the hopes of overtaking a gray squirrel that was fast escaping through the tree tops, when one of these lilliput frogs, the color of the fast-yellowing leaves, leaped near me. I saw him only out of the corner of my eye and yet bagged him because I had already made him my own."

If it should be admitted that consciousness does nothing in the way of controlling the mental operations except (1) to adjust the cerebral apparatus for the performance of the act by focalizing upon the thing to be done, and (2) to note the result, as conforming or not conforming with that intended, then we can easily explain such cases as that reported by Dr. Prince without supposing the existence of a subconsciousness directing operations without the knowledge of the ordinary consciousness. The subject described by him perhaps differed from other persons chiefly in the fact that the cerebral apparatus had been trained in the simultaneous performance of separate, unrelated acts, to a greater extent than that of most people. Consciousness could adjust the nervous apparatus for the performance of one act, then concern itself with other processes. The adjustment having been made, when the figures that were to be the signal for performing the act were presented, the act was perhaps carried out without any supervision by consciousness, and later reported. The case does not differ from that of ordinary experience except in the fact that usually we can not adjust the nervous apparatus for performing such a complex act so completely that it will be performed successfully without some marginal or focal consciousness of the partial results whose proper linking together constitute the successful progress toward the result planned. Dreams usually lack cohesion because there has been no adjustment for the accomplishment of a definite end, or because there is no report of what is done at each stage or readjustment by consciousness to lead to the end planned. Sometimes, however, the adjustment of the cerebral apparatus, because of recent interest in solving some prob-

lem, is such that problems are completely solved in dreams. Some people are able to exercise some control over their dreams. If this power were developed and practised until they could set themselves to dream the answer to questions that might be asked, they would be in a condition similar to that of Dr. Prince's subject.

If it be admitted that the function of consciousness is to adjust the nervous apparatus for the performance of certain acts and to note whether the results correspond or lead to those anticipated, then the phenomena of dreams, hypnotism, double consciousness, and so-called subconsciousness do not differ essentially from ordinary mental operations. Everything that the mind does is the result of physiological functioning, and consciousness does nothing but adjust the mechanism and note the results. Ordinarily it must do this at every step in the performance of a complex process and adjustment, for the performance of only one process at a time is made, but under exceptional circumstances or because of special training the physiological apparatus may perform very complex operations without consciousness directing the partial readjustments at each stage of progress, and it may perform more than one non-habitual act simultaneously.

The seemingly prominent part that consciousness plays in all new and complex activities is probably in part illusory. The intentions which produce the adjustments of the apparatus and the steps in the processes follow one another so closely that it seems as if consciousness were doing the whole thing. In reality the case is probably similar to that which makes one feel as if he were the active agent in all that is being done by a machine that he is controlling, when, as a matter of fact, he makes only a few slight movements and the mechanism does the rest. In a similar way consciousness is continually adjusting the cerebral mechanism by focalizing on one or another element that is presented and noting its relation to the end in view, but everything that is brought to consciousness is brought there by the working of the physiological mechanism.

Believers in the subconscious will doubtless say that thus far the most important evidence of the existence of consciousness in connection with the performance of operations that are carried on outside of the primary consciousness, has not been mentioned. This fact is that not only has the operation been performed, but in a hypnotic state subjective details can be given of how it was performed and of the feelings accompanying its performance. This is undoubtedly a feature of the phenomena of great importance, yet there are many facts of a normal experience of a similar nature. We sometimes understand what a person has said a short time after the words were uttered when we did not understand them at the time.

We may also be able to report details of what we have seen, but we are not conscious in the original perception of having noticed them. Memory of what was not consciously learned is by no means unusual, as illustrated by the classical example of the ignorant servant girl repeating, while in a fever, passages in Greek and Latin that she did not know anything about in her ordinary consciousness, she having incidentally heard these passages repeated by her master. An example from common experience similar to this is that of a man in whose presence an item of local news was mentioned while his attention was occupied with something else. A little later he told this news to the family, and when asked where he read it said that he believed he read it in the paper.

It is generally admitted that memory depends upon the reactivity of at least a part of the same apparatus that was active in the original experience. It may be claimed, therefore, not without reason, that it matters not whether consciousness was present or not, at the time of the original functioning. If consciousness is present when the apparatus is made to function again in a similar way, it may be able to report details that would have been known at the time, had consciousness been present.

It is true that it is a serious matter to refuse to accept the subjective testimony of consciousness regarding itself. The question here raised, however, is not as to reliability of direct introspection, but as to the testimony of consciousness as to its states when a process that is now remembered was being performed. Undoubtedly there are various degrees of reliability to be attached to the testimony of the consciousness of different people regarding past experiences. There is reason for thinking that the testimony of those who are exceptional to such an extent that they can perform complex operations without any normal consciousness of their being done, is likely to be less reliable than that of more normal people.

The possibility of mental operations taking place in practically the same way at one time with, and, at another, without, consciousness must be given due weight in considering this question. We know that this is possible in the case of a large number of automatic and habitual acts such as breathing and writing, which are usually performed with little or no direction, and sometimes without the awareness of consciousness, but which may at any moment be brought under conscious control. Some individuals find it more difficult to learn what they try to learn than that which they make no effort to acquire. One, who by the greatest effort is unable to learn the simplest mathematical processes, may, without any effort on his part, compose poems, stories, or essays, beautiful in sentiment and language. Again, it is not at all unusual for the brain, when once

started to working in a certain way, to go on working out the solution to some problem in spite of the efforts of consciousness to direct the activity in another line.

Conscious control of mental operation, so far as it exists, is largely acquired by experience, and to perform without consciousness may be also developed by training. Conscious control of such functions as the shedding of tears and the beating of the heart that are usually entirely beyond the control of consciousness, may be acquired by some individuals, so other individuals may acquire the power of carrying on complex operations such as are usually performed only under the direction of a focalized consciousness without being aware that the operation is being performed, being wholly occupied with the direction of some other operation. It is probable that most of the subjects of hypnotic experiment have had a good deal of training in the performance of complex acts without conscious direction. Very slight changes in the adjustment of the cerebral apparatus are sufficient to bring about very marked changes in the processes performed. The hypnotizer is one who is skillful in arranging conditions so as to bring about the desired adjustment. The hypnotic subject becomes a good performer in proportion as his cerebral apparatus is trained in functioning without the direction of his own consciousness, but in response to suggestion of the hypnotizer. The skilled hypnotizer trains the nervous mechanism of his subject so that it can perform quickly and accurately the various processes without the interference of the subject's own consciousness.

The term "physiological functioning" may mean practically the same thing as "subconscious." Were the term subconscious used merely to indicate *processes* carried on without the knowledge of the normal consciousness, the term would be convenient and unobjectionable. When, however, the term is used to indicate *states of consciousness* unknown to the primary consciousness, we have an entirely different conception from the physiological one. It is true that both terms are used to indicate processes of which we know but little, yet it is important to know which term and which conception is likely to lead most surely to complete and accurate knowledge of the nature of these unknown processes. It is also of vital importance to the science of psychology to decide this question, because it is very closely bound up with the more fundamental question of the real function of consciousness in all mental operations.

It is doubtful whether objective evidence can do anything more than establish the probability or improbability of conscious activity being present in any given case. There is reason for thinking that the nervous apparatus working without consciousness, under favorable circumstances, perform almost any sort of an

be performed with consciousness. Without consciousness, however, the performance of complex processes in a coordinated way, especially when they involve a new mode of functioning, will be rare exceptions instead of the usual thing.

One's judgment is likely to be influenced in considering the existence of subconsciousness by the number of facts brought to his attention of complex processes that seem to be directed by physiological laws only, as compared with the number of facts indicating that there was a consciousness unknown to the ordinary consciousness supervising the process and able afterwards to report details of how it was done. Dr. Prince being familiar with many facts that appear to be of the latter kind, naturally believes in the subconscious in the sense of the coconscious. Perhaps his unusual familiarity with facts of that kind warps his judgment as much as Dr. Pierce's lack of familiarity with such facts makes him, in the opinion of Dr. Prince, unable to interpret such facts. The subconscious explanation is readily used and difficult to test in any reliable way, while the physiological explanation with improvement in neurological methods will be able to apply exact objective test to the phenomena. Hence unless the mass of evidence is overwhelmingly in favor of the subconscious explanation, it seems safer for the scientist to attempt to use the physiological explanation until more is known.

It is especially important, now that comparative and genetic psychology are receiving so much attention, that the real function of consciousness should be determined. It is to be hoped that the discussions regarding the subconscious will not become a mere dispute about terms, but will lead to a more definite conception of the part played by consciousness in the behavior of men and of animals of all grades.

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TRUTH VALUE¹

AS I read the invitation of the program committee to prepare a paper on "Truth-Value" I thought at first: "How delightful to have a subject so free from the dust and blood of the arena." For however much we may disagree, and however little we may know about the nature and the criterion of truth, we are all sure of its great "value." We are all prepared to say, as one of Pro-

¹ One of a series of papers read at a symposium on value held at the holiday meeting of the Western Philosophical Association, in Chicago, December 31, 1907, and January 1, 1908.

fessor Angell's elementary pupils once said of the nervous system, "What should we do without it!"

But, alas for him who reckons without the guile of the program committee! That committee knew full well that it might have difficulty in finding some one—even a pragmatist—willing to talk further at this time on the "nature" or "criterion" of truth. And it knew equally well that any attempt to talk about the "value" of truth, apart from its nature, could end only in pious exclamations. It knew that every attempt to describe truth value and to discriminate it from other values, must be a description of its nature. So when the familiar refrains and the old shibboleths sound in your ears, I hope you will remember who is responsible. Not that the last right word has yet been spoken on the nature and criterion of truth, but that so much has been said in the search for the right word that I fear many of you would fain turn awhile to other problems.

If we begin with the most general and formal phase of the subject, the usual statement is that truth and error are values belonging to the experience of judging. But such a statement is obviously verbal until we go on to state *what* the value of this judging experience is. And this brings upon us at once the entire problem of the place and function of judging in the whole process of experience, and with it the issue between logical-absolutism and certain forms of realism, on the one hand, and "instrumentalism" on the other.

The contention of the logical-absolutist is that truth and error values are the satisfaction and the dissatisfaction of a special and independent "part" or "side" or "aspect"—using Mr. Bradley's phrases—of our nature. In his article on "Truth and Practise" (*Mind*, 1904), Mr. Bradley says: "Reality is the satisfaction of all the wants of our nature, and theoretical truth is those perceptions and ideas which directly satisfy *one* of those wants." Thinking, then, appears to be the operation of a specialized instinctive want coordinate with the other instincts, as eating, drinking, reproduction, etc. Indeed Mr. Bradley comes near to saying this in so many words, albeit somewhat facetiously, when he says: "Metaphysics is a finding of bad reasons for what we believe on instinct—but to find these reasons is no less an instinct."²

With truth-value thus based on a special and independent instinctive need, an uninitiated observer might at first sight wonder that the supporters of this view are so shocked at Professor James's metaphysical pluralism, for this conception surely appears plural-

² In his paper which followed this at the symposium, Professor McGilvary frankly states and defends the special-instinct view of thought, using eating and drinking as analogues.

istic enough. But a second look dispels the wonder. For with so much logical and psychological pluralism as this view of thought as the expression of an independent instinct involves, nothing short of an omnipotent metaphysical absolute can save unity and continuity. On the other hand, Professor James can revel freely in his metaphysical pluralism just because he has so fortified his logical and psychological continuity in human experience that he can rest assured that no pluralistic metaphysical horde, however great, can ever destroy it. In general it appears that what we neglect in our psychology and logic we try to make up in our metaphysics. Metaphysics seems to be a sort of clearing-house for the accounts between our logic and unreflective experience.

And while we are about it another paradox or two in the situation may be worth a glance. For instance, we see the immediate-empiricist, Dewey, insisting upon the mediate, instrumental character of thought, while the absolutists are contending for its independent immediacy. Again, the logical-absolutist not only professes to accept the instrumentalist's doctrine of the relativity of truth and error to need, want, purpose, but characterizes it as a pathetic case of exploiting a truism. In the article above cited, Mr. Bradley says: "To me it seems obvious that if some function belongs to our nature there will be a need and a desire which correspond to that function. Hence if the free use of the intellect is really one aspect of our being, we shall in consequence have a need and a desire for that use." So we find the absolutists, Royce and Taylor, and the realist, Perry, all agreeing that *true* judging is the satisfaction of a want—a purpose, namely, the purpose to judge *truly*!

The instrumentalist's reply is that *this* is indeed not only a truism, but an unblushing *petitio* of a real issue, and that to him the truly pathetic thing is his critics' complacent satisfaction with it. Suppose we say: "Truth is what satisfies the cognitive need." "How trifling!" Locke would say, until we go on to show *what* the cognitive-need is, *how* it differs from other needs, and *how* it goes about satisfying itself. In such questions as these the real issue between the absolutist's and the instrumentalist's logic is defined.

If truth is the satisfaction of a special instinct coordinate with the other instincts, the first question is: What is this instinct's peculiar satisfying material or object? And here we seem halted. For there appears to be no special object analogous to those of the other instincts. The content of any thought always turns out to be the material of some other instinct. Besides, if thought has its own special material, what becomes of its universality?

"Universality." That word gives us a new cue and suggests that we may have been on the wrong scent for the object of the cog-

nitive instinct. For does not universality belong to such things as major, minor, and middle terms? Here, then, perhaps, is to be found thought's satisfying portion. The cognitive need is a hungering for universals and particulars, a thirsting after subjects and predicates, a yearning for syllogisms and episyllogisms; while negatively it is a congenital horror of such things as illicit majors and minors and undistributed middles.

This gentle mockery, I am sure, can not give offense, for nothing could surpass the contempt with which absolutists themselves have rejected formal logic, "as witness the hilarious scorn which Mr. Bradley has leaped upon the devoted head of the syllogism." The reasons for this repudiation are familiar. I need mention only a few of them. First, if the formal processes were the satisfying content of thought, the material ought to be perfectly indifferent. The length of the Devil's tail or the color of Eve's eyes should be as satisfying material as anything else. Again, if the material be indifferent and thought goes on according to its own independent and immutable laws, where is there any place for error, for dissatisfaction? Still again, if dissatisfaction does *somehow* arise, what is to determine when truth is reached again? If we answer: "Simply the sense of *consistency* peculiar to the cognitive instinct," what saves thought from the subjectivism *supposed* to characterize the other instincts, as hunger, thirst, etc.?

The situation at this point is, then, that, if the formal processes are rejected, thought, though a special and independent instinctive need coordinate with the other instincts, has yet no corresponding peculiar satisfying material. What is to be done? What *has* been done so far in history of logic is to compromise by admitting the dependence of thought for its *material* upon the other instincts, but still clinging to its independence as a process. The consequence of this sort of compromise has been the train of incurable "contradictions" and "antinomies" which have harassed the entire history of logic, and which end in the confession that so long as the cognitive instinct must be dependent on the other instincts for its materials no "perfect" satisfaction, no "real" truth-value, is possible. The indispensable condition of reaching such a state, says Mr. Bradley, in effect, is that thought should be independent, not only as a process, but in its material as well. That it should, in short, produce its own material.³

We all know how, at this point, Professor Royce came valiantly to the rescue with his famous map of England and the self-representative number-series as illustrations of how thought could produce its own material. But many think (1) that even in the self-repre-

³ "Appearance and Reality," 2d ed., appendix, pp. 562 ff.

sentative number-series the contributions of the other instincts are discoverable; and (2) that as an illustration of what thought can do in the way of producing its own differences when the other instincts are shut out as far as possible, the result is not very promising in the way of variety.

At about this stage of affairs the "instrumentalist," "pragmatist," or "radical empiricist" (whatever you will), came into the discussion. He began by agreeing with Bradley and with Royce that the one thing needful is continuity between the process and the content of thought. But the attempt to secure this by having thought produce its own material had, in his opinion, failed. Falling back, then, upon Bradley's position that thought draws its materials from the other instincts, and groping about for a new clue, he kept putting such questions as these: What determines *when* thought draws upon the other instincts for material? And what determines *what* material it selects and just *what* it is to do with them? Observations in response to these inquiries seemed to show: (1) that the materials selected are always those of instincts which have come into conflict in the process of satisfying or "expressing" themselves; (2) that it seems to be the work of thought to deal with this conflict; (3) that it sets about this through analysis and synthesis; (4) that success or failure in effecting the resolution of the conflict marks the limits of this process of analysis and synthesis, *i. e.*, determines specifically truth and error.

Concerning truth-*value* he could say, so far, at least this much: that thought's satisfaction is not independent of the satisfaction of the other instincts. Rather does it seem to find its satisfaction precisely in quelling the dissatisfaction due to the conflict of the other instincts. Their extremity is thought's opportunity.

Still the breach between the process and the material of thought remained. But, said the instrumentalist, there is yet an alternative, namely, the reverse of Royce's experiment. That is, instead of attempting to meet Bradley's demand for continuity by having thought produce its own material, why not have *the material produce its own thought*? The term "produce," however, leaves the connection still too loose. Rather, why not regard these instincts in conflict *as developing into both the process and the content of thinking*? Just as the contents of the conflicting instincts are not left behind when thought begins, but go on over *into* the thinking as *its* content, so, on the other hand, there is no thought machine or faculty already there *in advance* waiting to receive the material of these instincts. The process of thought is just the process of this conflict of instincts working itself out through interaction with other and *for the present purpose* more stable values.

Hence, the "other" "given" need haunt our logic. For this "other" is not a "fact" in which assumes a *preexistent*, purely "given" "fact" of existence, of being, or "being" of some sort, to which the other is "relative" to be "given."

Hence it is not to be understood that we are not speaking, as so many have supposed, of an *extra* "stage" of thought in the universe. The determinist must surely really agree that as this conflict of instinctive values has always existed, so thought has always existed. And that as this process thinking results in reconstructed instincts, so the present "end" is, in this sense and to this extent, an outcome of previous thinking. But he insists that this previous thinking, as the present one is not performed by a purely cognitive agent, or faculty, or instinct, *upon* a material "given" to it by the other instincts.

And this view does not mean, from the standpoint of value, that this readjusting, revaluating stage into which the contents of the conflicting instincts pass, has not its own peculiar value; nor that it may not be regarded as an "immediate" value, as all value, in a sense, must be. But it insists that we must keep in mind that the *content* of this "immediate" value is just this entire experience of conflicting instinctive values undergoing *mediation* and revaluation. It is "the value of experience as undergoing control in contrast with experience in chaotic conflict. But not control *by* a special faculty or instinct of control. Control is a "stage" of experience, not a "part," or "side," or "phase," of it.

There is, to be sure, always in this revaluation or control stage some value (or values) that serves as the end or purpose. But the control is not *all* lodged in the purpose. The end is only one pole of the whole process of gaining control. In this sense the *end* is a *means* of control. But, again, the main point here is that the end is not furnished by an outside, independent faculty or instinct which operates as a special "end factory," whose business it is to keep a supply ahead or, failing this, to make one "while you wait." This end is born of the conflicting instincts. It is "bone of their bone and flesh of their flesh."

Our outcome thus far is, then, that truth-value is not the satisfaction of a special instinct coordinate with the other instincts, but that it is the value of the entire experience of readjusting conflicting values through the process of redistribution of values effected by interaction with a wider and *relatively* more permanent range of relevant values.

I am painfully aware of the extremely general character of all this, that it gives no details of this revaluating stage; that it leaves unnoticed the different elements in the constitution of truth-value

out of which spring the ambiguities of the term "truth," in which it is identified now with the subject, now with the predicate, of the judgment; now with what we *have* attained, again with what we are *seeking*. I am mindful that we have not touched that old, but ever perplexing, tangle of relationships between truth-value on the one side, and ethical, esthetic, and economic values on the other. We say in one breath that truth is a value belonging to judgment as such, and in the next we speak of ethical, esthetic, and economic judgments. Does truth, then, belong only to one kind of judgments? Or are ethical, esthetic, and economic judgments special forms of truth? Or are they all coordinate values belonging to every judgment? Or are they all stages through which every judgment passes? And if so, what determines these stages? But in fifteen minutes much must be sacrificed, and in the minute or two left I wish to anticipate two or three general objections.

The first is likely to be a challenge of this whole conflict-mediational view of thought and its value. "How," it will be asked, "can it apply at the level of perceptual judgments?" *e. g.*, "This is paper," or "This paper is white." Where is the conflict here? "Well," the instrumentalist will answer, "there may not be any conflict. But *if* there is not, then there is no judgment." And he will declare that here, as so often in philosophy, language bewrayeth us. We assume that because we repeat the words that *have* expressed, or *might* express a judgment, that they do now. And he will suggest that a simple but effective way to test the presence of a real "live" judgment, to use Dr. Thompson's term, is to preface the alleged judgment with the term "I think," or "I judge," or "I have an idea." If the statement "This is paper" means "I think," or "I judge," or "I have an idea," that it is paper, then it is a real judgment. If it does not mean this, it is merely a direct articulatory response to the visual and tactual stimulations, and is no more a judgment than tearing it, or poking it, or setting a match to it. Once more, judging means *inquiry*. Inquiry means *doubt*, and doubt means *conflicting impulses*.

Again, it may be said even if conflict in immediate experience does lead to thinking, it is no less obvious that thinking leads to conflict. What experience more common, alas! than to find that the more we think the worse the tangle becomes. But this is only the familiar paradox of "fighting for peace" or a "painful cure of a pain." Obviously, as the conflict develops into the thinking stage it may prove to be much more far-reaching and deep-seated than it was immediately *felt* to be. Fortunately, on the other hand, it often, if not so often, turns out the other way.

Admitting once more the conflict character of knowledge,

it will be said, as it has been said, that this problem is not experienced as a conflict of *instinctive* values, but is experienced from the very start as a cognitive problem, as a problem of knowledge. The instrumentalists reply: Of course it is. For when the conflict in immediate values has gone beyond the blind pull-and-haul, thrashing-about stage, and has developed into the problem form, it is already in the cognitive stage, and is, of course, so experienced.

As for the objection that this view of thought value "subordinates" the intellectual "side" or value to the other "sides" or values, I confess I am unable to see how the conception of thought as the experience in which already constituted values are reconstituted, revalued, makes it subordinate to these values. The converse would be as true—and as false. As true and as false as to say: "speaking is subordinate to words or painting to colors."

Finally, if it be said that this "instrumental" view of thought destroys the character of immediacy which is fundamental in value, the answer is: This objection assumes that the *value* of an instrument must itself be instrumental. But this is no more the case than a perception of a heap must be a heap of perceptions.

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REVIEWS AND ABSTRACTS OF LITERATURE

Proceedings of the Aristotelian Society. N. S., Vol. VII., 1907. London: Williams and Norgate. Pp. 244.

I. *Nicholas de Ultricuria, a Mediæval Hume.* HASTINGS RASHDALL.

Evidence of a bold skepticism meriting mention in the history of philosophy is afforded in the list of errors charged against Nicholas of Autricourt by the Papal Court in 1340. A follower of Occam and Roger Bacon, influenced by Aristotle and the Commentator Averroes, Nicholas also shows a marked skepticism and idealism far in advance of his times. "Of the existence of material substance distinct from our own soul we have no evident certainty," he says. We can not, however, be quite sure as to whether idealism or skepticism is the position which he holds. His skepticism, we are told, reaches its culmination in the article, "This is a first principle, and there is no other, 'If something is, something is.'"

Though the loss of such writings as might show the arguments for these advanced doctrines makes it difficult to give them a complete interpretation, and, in particular, to judge absolutely as to whether they stand for skeptical and idealistic convictions, or as mere alternate propositions held as equally sure with those of a more realistic and dualistic order—and therefore arguing for the value of faith; yet we have enough recorded in this short paper to warrant the thought that, owing to the difficulties

attending the publication and preservation of documents during the middle ages, we have doubtless lost sight of many powerful influences in the development of thought.

II. *On the Nature of Truth.* BERTRAND RUSSELL.

The argument of logical monism that only the whole of truth is true leads us into certain difficulties. "(1) If no partial truth is quite true, this must apply to the partial truths which embody the monistic philosophy," thus rendering invalid any deductions made. "(2) It is a consequence of the monistic theory that the parts of a whole are not really its parts. Hence there can not be any genuine whole on this theory, since nothing can be really a whole unless it really has parts. (3) The theory is unable to explain in what sense one partial judgment is said to be true and another false, though both are equally partial. (4) In order to prove that there can be only one coherent whole, the theory is compelled to appeal to 'experience,' which must consist in knowing particular truths, and thus requires a notion of truth that the monistic theory can not admit." The doctrine of the whole truth is based upon an "*axiom of internal relations.*" But this axiom is untenable, because if there is but one truth it can not be constituted in relations. The law of sufficient reason when called in to justify the axiom fails, since it must always mean a reduction to simpler propositions, whereas the monistic idealist must hold that the simpler a proposition is the less true it is. Neither does the argument hold that two terms must have a relation because if they did not have it they would be different. The hypothesis of the two terms in another relation is false, and from a false hypothesis nothing can be deduced.

Following the view which admits of many truths, "two theories seem tenable, one of which regards truth as the quality of beliefs which are beliefs in *facts*, which are the only non-mental complexes, while the other regards truth and falsehood as both capable of belonging to non-mental complexes, which we call *propositions*, of which there are two kinds, *facts*, which are true, and *fictions*, which are false. Between these views, the decision is to be made, it would seem, by considerations of detail, as to the result of which it would be rash to decide hastily."

III. *On Causal Explanation.* PERCY NUNN.

In this paper the reader is treated to an interesting, though somewhat complex and not always perfectly clear, discussion of the relation of the explanatory notion of cause to the *data* which it is supposed to explain. If I understand the author aright, his principal conclusions may be summed up as follows:

There are three types of explanatory hypotheses. The first consists in adding to the incomplete spatio-temporal data elements of the same order which will make the system complete. This constitutes a true causal explanation and is, at least ideally, verifiable, but it is characterized as belonging to the "*intuitional stage of knowledge.*" The second type consists in adding relations which exist between spatio-temporal existences.

Explanations of this type are also ideally verifiable, but they "have, as a rule, the status not of *causes* but of *reasons*." They "seek to render intelligible not the existence of objective phenomena, but only their quantitative determinations." The third type is the most interesting, though the least stringent, since it consists in not merely completing the data, but in replacing them by factors which lack homogeneity and are quite unverifiable. The typical illustrations here are the abstract notions of force and matter. In an endeavor to avoid hypotheses of this last type, "dynamical explanations" tending to drop the causal explanation and substitute a purely mathematical functional relationship are formulated. But these, the author contends, though they do approach the second type of hypothesis in form, really find their ultimate basis upon a causal mechanics which depends for its significance on metaphysical interpretations of other than a strictly homogeneous character—that is, they are but abstractions from the notions of matter and force.

From what context, then, are these notions of force and a material background borrowed? It is the context of "intersubjective intercourse," the author concludes, which provides us with fundamental notions of individuality and reaction, and causes us to offer them for causal explanation even within a field where they can not be proven to belong. In turning to the explanation of living matter, we find that the first two or verifiable causal methods, though proving of great importance in explaining primitive life, are yet unable to grapple with the problem of the "so-called psychic phenomena." Here again it is the context of "intersubjective intercourse" which affords the only successful hypothesis. And so, "finally, we may, perhaps, conclude that we have here something which really does stand to the material environment (including its own body) in relations which are totally different from the relations, as far as we can judge them, in which the parts of the environment stand to one another, relations which are . . . actually the source of the causal ideas of persistent individuality and force upon which science has so constantly relied to render intelligible the behavior of the material universe."

IV. *Logic and Identity in Difference.* E. E. CONSTANCE JONES.

The author pleads for a "more general recognition of the importance of the notions corresponding to the terms in question" (identity and difference) "and of the harm which results from the unprecise way in which they are used, and an attempt to avoid this latter by careful distinction and differentiation." The result of such "distinction and differentiation" is that "Identity in Diversity may mean (1) 'numerical' or 'individual' identity in qualitative difference (as in *S is P*); (2) numerical difference in qualitative likeness (as with members of a class); (3) qualitative likeness in qualitative difference (as with genus and species, or coordinate species)." To these three are then added a fourth, or the unity in difference of the members of a system or "any whole of related parts." These four fundamental and ultimate forms, the author

contents, are all subject to logical treatment, and "for a theory of Logic we want a clear analysis of what is involved in these common and inevitable forms."

V. *Humism and Humanism.* F. C. S. SCHILLER.

After noting common empirical tendencies and common pragmatism, in so far as Hume's pragmatism can be taken seriously, Schiller proceeds to array the two systems against each other and point out the existence of a closer relationship of Humism to the intellectualism against which Humanism principally strives than any existing between Humism and Humanism. The upshot of the discussion is that Hume in criticizing rationalism by means of her own purely intellectual terms was led only into skepticism, whereas Humanism, though equally opposed to pure intellectualism, is a "professional," positive attempt to replace this bankrupt species of idealism by a voluntaristic libertarian view which evades Hume's position and criticism, especially with respect to causation and activity, by declining to accept Hume's intellectualistic postulates: that (1) "intellection is the only philosophically valuable human faculty"; that (2) "nothing but intellection is necessary to cognition"; that (3) the purer the intellection the truer will be the results; that (4) "cognition means rendering the mind *passively* receptive" of "reality" or "truth"; that (5) "anything in the nature of human activity or initiative can only exercise a malign or disturbing influence on our cognitive procedure." In opposition to these postulates Humanism contends that (1) "intellection is not the only valuable function in human life, nor the source of its value"; that (2) intellection does not suffice to explain cognition, nor even to explain itself, since real knowing always involves "such non-intellectual aspects as desire, interest and purpose"; that (3) it is frequently not true that "the 'purer' the intellection, the more valuable the results"; that (4) cognition is never merely a passive recognition, but is "always an interaction with a reality which is still capable of being moulded to some extent by our action"; (5) "that human activity, therefore, is nothing science need be ashamed of or metaphysics frown upon, but is rather the fountain head of philosophic understanding, which can be neither ignored or suppressed." The conclusion is that the affiliation of Humanism to Humism is misleading, and suggests that it is intellectualism alone which is "groaning and groveling in the grip of Hume."

VI. *Fact, Idea, and Emotion.* SHADWORTH H. HODGSON.

The author proposes to substitute the questions as to *What is* and its *Real Conditions* for the older metaphysical problems of substance, agent, and cause. If thought is conceived as creating its own content, after the manner of the idealists, it must be regarded as inadequately conditioned, since, presupposing time and space, as we must, time, at least, is an element in the constitution of thought itself. This being agreed, "time-duration" is taken by the author as a criterion for establishing a dualistic realism which works out somewhat in this wise. Time-dura-

tion is inseparable from the two aspects of consciousness which are forced upon us; namely, consciousness as knower and consciousness as known, or "existent." The same time-duration applies to each in the case of perception; but not so in the case of representation, for here the content as a knowing may be of any length, while its "length of duration as an existent . . . may be very brief." This forces on us the conception that real conditions are inseparably bound up with the perception of things visible and tangible which, "when objectified as qualities, we call material objects." Therefore, we are compelled to attribute "all positively known efficiency or real conditioning to something which is not consciousness." This is not to be construed as materialism, since that involves "bringing material organisms under the common-sense conceptions of causes, substances, or agents, accounting for the whole nature of their effects, attributes, or actions;—conceptions which we now see to be anything but ultimate or explanatory."

As a consequence of this view, truth is "our perception or idea of compulsorily perceived fact, whether existent or event or relation between them." It is not *a priori*, but rests on the distinction of knowing and being, without which distinction, as, for instance, in the case of the idealists, the meaning of truth is gone. Truth, in fine, must "conform to those facts of presentation or representation which we can not help being aware of."

With regard to emotion and the basis of ethics, these experiences as specific feelings "stand to the representational . . . process as the specific sensations stand to the process of sense-presentation; they are, as it were, the sensations of the representational process . . . intelligible only in terms of ideas, representations or thoughts. . . ." As an "existent," therefore, emotion makes a moral character which expresses itself in a feeling of preferability, and there is "no higher moral authority positively known to us" than the "reflective judgments of conscience." It is neither an ideal form of pleasure, nor an ideal end, but just a "development of our own nature and character by acting under the constant guidance of the reflective judgments of conscience" which constitutes the fundamental doctrine of ethical practise.

As to freedom, analysis shows that *process* is indifferent to freedom or compulsion. In looking back upon a process "you take it as known fact or knowledge, and then law is bound up with it; if you look forward, you take it as action, determining the unknown and as yet non-existent future, in which, until determined, there is no law."—"Action makes law, not law action." Yet, if the analysis of consciousness *per se* reveals a certain lack of constraint or freedom, the conception of conscious being involves both consciousness and a non-conscious matter "in combination with one another as conditioning and conditioned. The conscious being is free—where he is free—in virtue of his action, which belongs to his neuro-cerebral activity, he is responsible—where he is free—in virtue of his self-judgment, which belongs to his consciousness."

VII. *Intuition.* A. T. SHEARMAN.

This paper consists of two parts. The first considers "The Position of Intuition in Philosophy," and concludes that intuition furnishes the starting point and prompts the selection of a method for treating the data. It is, therefore, accountable for the number of differences between philosophical systems. Since the success of a philosophical system "depends not merely upon the cogency of its arguments, but also upon the acceptability of its premises, and of its method," every philosopher tends to have his own system, and it is seen that "past systems have produced comparatively little satisfaction. A system produced as the result of the voluntary cooperation of expert philosophers would be likely to create a greater amount of satisfaction than would attend individual efforts," though it "may quite well in the future give place to another. It can not positively be asserted that the most satisfying system is that which is nearer the truth, but we may hope that this is so. The expression of such hope rests upon the intuition, which most, perhaps all, of us have, that we ought to seek the truth."

The second part of the paper considers "the grounds of our knowledge of that which it is sometimes affirmed has a 'consciousness of self as self.'" The conclusion is, that although we may differentiate a subjective and an objective self, and that the objective self is directly perceived, we have only indirect knowledge of the subjective self, as it can neither be perceived nor intuited. We may, however, intuit in intellectual terms the subjective self of another. Evidence for the existence of this subjective self consists (1) in the fact that "when we predicate individual experiences of the objective self" this "involves the existence of a subjective self to whom both the objective self and the individual experiences are presented"; (2) in the fact that the subjective self feels—the objective self being merely presented can not feel; (3) in the fact that the subjective self attends, "for in the case of no presentation does intensity depend entirely upon the strength of the physical stimulus."

The conclusion with respect to feeling gives rise to a long discussion in which Ward's position is maintained, that, though while they are actually existing, pleasure and pain can not be attended to, they "may, just as they have ceased to exist, affect presentations in two different ways, which we style respectively pleasant and painful," that which is recognized being an after-effect. The question, "How can something not a presentation produce a change in the continuum of presentations?" is disposed of as a mystery which must be posited, although it is noted that the mystery is no greater than that involved in the case of the inception of any presentation. It is concluded that "mental life consists of presentations, and these indicate the existence of attention, which increases at the same time that their number and intricacy increase, and of feeling, which is never attended to, but which leaves qualitative, quantitative or successional alterations in presentations, whereby these are spoken of as pleasant or painful." The latter portion of the paper consists in an *Auseinandersetzung* with Drs. Stout and Dawes Hicks in the matter of certain recent papers of theirs which attack the same theme.

VIII. *Philosophy of Education.* BENJAMIN DUMVILLE.

In a most valuable discussion of educational systems, the author points out the failure of traditional humanistic, realistic and naturalistic philosophies to furnish the "basis of education for philosophical guidance." Only on the basis of a "comprehensive philosophy of life," he contends, can we "grapple successfully with the problem of education which is co-extensive with life itself."

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Man and His World. D. D. P. New York: The Macmillan Co. 1917. Pp. xx + 364.

Mr. D. D. P. attempts to make a new departure in sociology. He begins by trying to show, "in tracing the evolution of society, the influence of the races, relying on data selected promiscuously from the various races of the world and from many different races" and devotes the next chapter to racial types. A somewhat similar task was attempted by Huxley in his "Social History of the Races of Man," and by Hooton in his manual of sociology, but with the admission that such a task was "as yet non-existent." To-day Mr. D. D. P. has succeeded in forming a series of descriptive monographs; he has shown the influence of racial heredity and the different forms of civilization on the forces and laws which explain mental and physical differences, and descriptions within racial limits.

Mr. D. D. P. starts on a racial basis, with geographical subdivisions of the various races, for which the author claims that the study of the Negro in America is only the first of a series of studies of the various human family. No one can fail to admire the thoroughness of his work, and any undertaking or will withhold from this book the praise of a painstaking, careful compilation.

But Mr. D. D. P.'s classification is not a mere convenience of arrangement, and therefore it is relevant to join issue with him on some of his racial groupings. His inclusion of the Gallas in the Negro and Vassio among negroes scarcely agrees with the classification of the anthropologists. Professor Keller, A. H. Keane,

and others, consider the Gallas only "dark type" to quote Dr. Duckworth, "and not really Negroes," and they are associated with the white races. The tendency to divide is to distinguish also between the Negritoes, or Negroes, Pygmies, and the Bushmen the contrast between the extreme primitivism of the former and the orthognathism of the latter is sufficiently obvious not to mention the differences of stature and cranial index. Now is it not a mistake to associate (from Ratzel) as a characteristic of the Negritoes. It is the feature of Bushmen and only a faint appearance of it is seen among Pygmies, in some who are not of a pure type. A reference to more recent writers, Sir H. H. Johnston, F. C. Shrubsole, and Dr. W. L. H. Duckworth, would correct the earlier reports. These and some minor points tend to modify the physical de-

scriptions given by Mr. Dowd and raise questions on that most difficult of subjects—racial classification.

Taking the "negro races" as his first study, Mr. Dowd divides them, according to their habitat, into geographical zones, which he calls the banana, millet, cattle, and camel zones; he then addresses himself to the task of establishing the special evolution of the race in each particular zone. To the conservative historian, the caption "Political Life of the Banana Zone" might come as "a red rag to a bull" and make him steel himself to meet the onslaught of "laws of geographical control." For it seems as if geographers, flushed by the first success of their new enterprise, were ready to deny human control of nature even in historic times; in respect to prehistoric peoples, however, or those yet in a primitive stage, little exception can be taken to a claim for the great influence of physical environment.

How does Mr. Dowd fulfill his object, "to establish the fact that each race has its distinctive institutions and special evolution corresponding to the locality in which it lives or has lived"? The following may be taken as an example of his deductions. In accounting for the decrease of fetichism in the millet zone as compared with the banana zone, he remarks that it "is due in great part to the fact that the people have to exert their minds and bodies more vigorously to live, and hence bring about more development of their reason. Being obliged to do more to overcome nature, they necessarily become less afraid of it." On the whole, his arguments are well sustained, though the layman sometimes feels suspicious of a science so provided with laws, that a fresh one is forthcoming for every phenomenon, alike for norm and exception. Also one is inclined to raise the question whether we know enough of the movements of African races previous to the last four hundred years to say what has been the environment of each tribe or people. It is agreed, for example, that the Bushmen have not always been a desert race. This is important if we are to concur with the author as to the great determining influence of environment, and also allow him in the present stage of biological and psychological knowledge, or ignorance, to hold with Professor Reinsch that "inherited psychological elements—the constitution of the mind—are the most persistent phenomena of which we have any knowledge." Perhaps under the influence of previous writers, our author underestimates the negro's mental activity. Dr. Boas has administered a healthy corrective to the white man's ready assumptions, by demonstrating the power of abstract thought and of inhibition possessed by primitive peoples. We do not recognize these powers because they are applied to objects or customs which do not exist among ourselves. Moreover, we label peoples as far inferior whose mental activity may be quite respectable, failing to observe that an erroneous interpretation of perceptions may be the result of logical processes, based upon traditional material of an entirely different character from our own.

Following the example of such writers as Col. Ellis, Miss Kingsley, and Sir Samuel Baker, the author, imbued with the highest moral convictions, concludes his work with some sound advice to missionaries. It

is to be hoped that potential laborers in the foreign mission field may profit by it, in which case this volume will not have been written in vain.

Not to missionaries alone, but also to all interested in the solution of the negro problem in this country, Mr. Dowd has rendered a valuable service by revealing the sociological conditions of the negro in his native land, and it is greatly to the author's credit that he writes of the black man's character and capacities with a studied impartiality.

Of the book as a whole it must be said that it leaves on the mind of the reader the impression of a conscientious inventory. In these days we need not be surprised to meet among newly developed types of book-making a card-catalogue type. A compendium of this kind is useful to the casual reader, and much more so to the student, but is lacking in the sustained interest which a well-planned scientific work may share with a successful piece of literature, by wise observance of emphasis and subordination. Mr. Dowd gives ample references; his bibliography would, however, be of more service if the initials of authors were included. Every one has experienced the loss of time in looking up authors with no other clue to their identity than such common names as Clark, Robinson, Ward. Also the frequent references to Fritsch in the bibliography do not mention which book of his is cited.

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The Philosophy of Common Sense. FREDERIC HARRISON. New York: The Macmillan Co. 1907. Pp. xxxvi + 418.

"I admit that metaphysicians, even of these latter days, exhibit extraordinary subtlety and intellectual power. I agree with them that no man can pretend to speak about philosophy at all unless he has done his best to master the vast evolution of metaphysical thought. I have done this." In this condescending sentence the former president of the English Positive Committee introduces a volume which consists in the main of papers read at the Metaphysical Society between the years 1871 and 1880. Submitted in his old age "to all who are seeking some sound basis of life," the work exhibits a philosophical Bourbon who learns nothing and forgets nothing; for since he was affected by the philosophy of his youth the writer seems to have been affected by little else. To him, as to a courtier of the *ancien régime*, the light of knowledge was considered to have come to a focus in one brilliant personality. Comte was his king, and the law of the three states his law.

It will be remembered that the French philosopher summed up in his theory of the three stages—*theological, metaphysical, and positive*—the essential steps in human progress, and in reaching the positive stage appeared, at least to this his disciple, to have reached the limit of progress. But Harrison did not go far enough. If there be any value in the positivist's synthesis, it lies in the fact that it represents a recurring process, and not an arrested cycle of development. Thus in the history of American speculation, native thought, passing through the theological

stage in Puritanism, the metaphysical in deism, the positive in realism, did not stop there, but, in a measure, reversed itself. After the "common sense" period there was a return of "metaphysical" interests in the idealism of Emerson, and all the strictures of the positivists against transcendentalism do but prove that it satisfied a persistent human demand. But neither have "theological" interests died out in the land, for the present revival of interest in the philosophy of religion is manifest in its mystical aspects among the uncritical "new thinkers," and in its practical side among the hypercritical pragmatists. Hence to the observer of recurrent mutations of belief the Comtean formula is not adequate. The metaphysical interest is not to be confined within a closed and static circle, but should rather be considered a vital and permanent issue among men. So, instead of the law of the three states, one would prefer Vico's cycle of belief, or, better still, a conception of the intellectual life as a cycloid, a curve traced by a point of an ever moving wheel.

I. WOODBRIDGE RILEY.

VASSAR COLLEGE.

Are Mental Processes in Space? WM. P. MONTAGUE. *The Monist*, January, 1908. Pp. 21-29.

Two important arguments against the existence of mental processes in space are (1) that they would then have definite spatial figure and be spatially related to one another; and (2) that all space is continuously filled with matter so that no room is left for psychical or non-physical states. But sensory qualities, save those of sight and touch, are felt as neither punctiform nor figured, and yet as definitely located in space. "And as for the mentioned non-spatiality of the *relations between mental processes*, experience offers countless instances of relations equally non-spatial, but which subsist between things about whose existence in space there is no question. Such, for example, are the relations of likeness and difference, harmony and dissonance, etc." And as to the second objection, Professor Montague finds that *potential energy* is something which, although as immaterial as consciousness, exists in space; and has a further resemblance to consciousness in being, as it were, physically invisible. This last property it is which prevents one from believing that consciousness is a mode of motion, or kinetic energy; but we can not "so easily dismiss the proposition that consciousness is a mode of potential energy. It may be said that the experience of stress or strain is not any more like the psychical in general than is the experience of motion. We must remember, however, that as velocity can be transformed into energy of acceleration, so acceleration can pass into the second derivative of the velocity. *The modes of potential energy into which nerve currents and other motions can pass include in addition to acceleration, the whole endless series of higher derivatives of space with regard to time, and in these purely intensive magnitudes and their mutual relations and combinations we have a system which is sufficiently rich and complex to express the manifoldness and multidimen-*

sional^{ity} of psychic life" (italics in original). Thus mental processes may be regarded as truly existing in space, in spite of their lack of definite figure.

In the same number of the *Monist* Dr. Paul Carus has offered several objections to this view of consciousness. One of these is that a physiological state of rest always coincides with a state of rest in consciousness, so that mental activity can not mean "a passive condition of an uneventful storage." To this Professor Montague's reply would probably be that if consciousness is identical with the potential energy in brain-cells, then every physiological change in these cells is correlated with a change in consciousness, and *vice versa*. And during "dreamless sleep," for instance, consciousness may not be absent, but merely so changeless as quite to elude the memory. A change in the potential energy is, according to the theory, a change of a higher derivative; which is again consciousness. Another of Dr. Carus's objections is, that "the problems of life and the ideals of mankind are not to be sought in the domains of either matter or energy, but are, all of them, without any exception, questions of form. . . . A materialistic monism loses sight of the significance of form and, with it, of all intellectual, moral, artistic, and religious treasures." The author would, perhaps, reply that something in the nervous system must account for these "forms," and that nothing is more adapted thereto than potential energy. And yet, indeed, it is one thing to say that the potential energy accounts for the forms of the contents of consciousness, and quite another to say that it *is* these latter.

The theory above reviewed, as its author states, bears resemblance to the views of Ostwald and others, and its author presents it as a form of interactionism which remarkably fits the facts. It should be carefully weighed by all who are hoping to find that consciousness *is* something else, as, say, some form of brain action.

E. B. HOLT.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. May, 1908. *Les sens esthétiques* (1^{re} article) (pp. 449-470): CH. LALO. - Historically organized arts appeal to only two senses, sight and hearing. Traditional theories give no satisfactory explanation of this fact. *De l'image à l'idée: Essai sur le mécanisme psychologique de la méthode allégorique* (pp. 471-482): EMILE BRÉHIER. - A study of the way in which thought exteriorizes itself in images and inversely, of the way in which images grow into ideas. *La genèse psychologique de la conscience morale* (pp. 483-502): BERTRAND MERTENS. - An account of the relations of certain ethical feelings to pathological conditions of the organism. *Revue Générale: Publications récentes sur la morale*: J. SEGOND. *Analyses et comptes rendus*. F. E.

Abbot, *The syllogistic Philosophy or Prolegomena to Science*: A. PENJON.
 H. Marcus, *Die Philosophie des Monopluralismus*: DR. JANKELEVITCH.
 Thiaudière, *La conquête de l'infini*: L. ARRÉAT. A. Binet et Dr. Ch.
 Simon, *Les enfants énormes*: DR. J. ROGUES DE FURSAC. Antheaume et
 Dromard, *Poésie et folie*: DR. CH. BLONDEL. Marie et Meunier, *Les*
Vagabonds: DR. CH. BLONDEL. C. Flammarion, *Les forces naturelles*
inconnues: DR. JANKELEVITCH. Grasset, *L'occultisme d'hier et d'au-*
jourd'hui: DR. JANKELEVITCH. Bauer, *Essai sur les révolutions*: DR.
 JANKELEVITCH. C. Bos, *Pessimisme, Féminisme, moralisme*: LIONEL
 DAURIAU. *Revue des périodiques étrangers.*

REVUE DE METAPHYSIQUE ET DE MORALE. May, 1908.
Bichet et la biologie contemporaine (pp. 261-280): F. COLONNA D'ISTRIA
 - This study traces the influence of Bichet's work in anatomy on all the
 sciences of living organisms in our day. *Les caractéristiques probables*
de l'image vraie (pp. 281-320): J. MALDIDIER. - The characteristic of an
 image most clearly indicating its truth is its resistance to eliminating
 and modifying activities of the will. *Importance philosophique de la*
théorie des nombres (pp. 321-345): M. WINTER. - The fundamental no-
 tions of arithmetic interpenetrate algebra and analysis, so the philosopher
 will find arithmetic a most fruitful object of philosophic study. *Études*
critiques: La philosophie de Wundt: Métaphysique (pp. 346-371): H.
 NORERO. *Questions pratiques: Examen critique des conditions d'efficacité*
d'une doctrine morale éducative (pp. 372-420): J. DELVOLLE. *Supple-*
ment.

Goddard, Harold Clarke. *Studies in New England Transcendentalism.*
 New York: The Columbia University Press. 1908. Pp. x + 217.
 Heberd, S. S. *Impending Anarchy.* New York: Maspeth Publishing
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 Sérol, Maurice. *Le besoin et le devoir religieux.* Paris: Gabriel
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 LXIV., No. 3, January, 1908. Pp. 477-512.

NOTES AND NEWS

PROFESSOR BAWDEN contributes to the July number of the *Popular*
Science Monthly an article on "The New Philosophy called Pragmatism."
 He recognizes three distinct phases of the movement as follows: Professor
 James emphasizes the practical meaning of the philosophy for every-day

life; Mr. Schiller defends the rights of religious faith and feeling in determining our beliefs; Professor Dewey is the champion of a scientific, empirical method in philosophy. It is to be questioned, however, how far these phases have been really distinct in pragmatism's short history, and how far the philosophers named are to be characteristically associated with each phase. "The pragmatic philosophy," Professor Bawden states, "by virtue of the fact that it purports to be a *philosophy*, is a form of idealism." He consequently finds some humor in the present philosophical situation, since "the pragmatists in practise repudiate pragmatism as a theory, while, on the other hand, the pragmatic theorists fail to see their own incorrigible idealism." Professor Bawden uses the term "idealism" in a very broad sense. We suspect, however, that it is not broad enough to bring peace between the "idealists" and the "pragmatists." In the same number Professor Wenley continues his paper on "The Movement towards 'Physiological Psychology,'" following the development of the "true physiological line" down to the contributions of Lotze, Fechner, and Wundt. These are to be the subject of the next installment.

THE Third International Congress of Philosophy will meet at Heidelberg on August 31 and continue its sessions until September 5. The following sections have been arranged: 1, history of philosophy; 2, general philosophy, metaphysics and the philosophy of nature; 3, psychology; 4, logic and the theory of knowledge; 5, ethics and sociology; 6, esthetics; 7, philosophy of religion. Papers may be presented in German, English, French, and Italian. Notices of papers for the various sections should be sent not later than the 15th of August to the general secretary, D. Elsenhans, Heidelberg, Plöck 79. In order to provide for ample discussions it is particularly requested that papers should not exceed fifteen minutes in length. Several general discussions have already been announced: "The Nature of Truth in the Light of Recent Discussion," Josiah Royce; "Il carattere lirico dell'arte e l'intuizione pura," Benedetto Croce; "L'état actuel de la philosophie en France," E. Boutroux; "L'idée de devenir," H. Bergson; "Zum Begriff der Philosophie," Theodor Lipps.

A GOLD MEDAL was recently struck and presented to Professor Ramon y Cajal, in the name of his friends and admirers throughout Spain. Professor Cajal refused to permit a public ceremony, and the medal was presented informally at his home on May 27.

PROFESSOR ALFRED EDWARD TAYLOR, professor of philosophy in McGill University since 1903, has been appointed to the chair of moral philosophy at the University of St. Andrews.

MESSRS. BLOUIN AND COMPANY, of Paris, announce that the publication of the *Archives de Neurologie* will be resumed under the editorship of Dr. A. Marie, chief physician of the Asile de Villejuif.

THE Rev. Dr. Otto Pfeiderer, professor of theology at the University of Berlin, died on July 20. He was born at Stettin in 1839.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

POSITIVISM IN ITALY¹

THE book by Professor Marchesini is an excellent exposition of Ardigò's philosophy. *Verum ipsum factum*: such is the motto of Italian positivism, which is not a thing of to-day, nor a derivation of French or English philosophy, but a genuine product of Italian thought. In fact, positivism has in Italy a long and brilliant tradition, from the time of the Renaissance to our day. Pomponazzi, Leonardo da Vinci, Telesio, Bruno, Campanella, Vico, can be considered as the forerunners of modern positivism; experiment and fact were, in their opinion, the true and only foundation of scientific certainty. The recorded phrase was the motto of G. B. Vico, the founder of philosophy of history; but, of course, it receives a different interpretation in the doctrine of Professor Ardigò, because fact, which according to Vico is simply a revelation of, and the means of obtaining, a higher truth having an independent existence, is, according to our modern philosopher, truth itself. "Fact, be it physical or psychical, is divine: principle is human," says Ardigò. Physical facts are, not less than psychical facts, states of consciousness. The distinction between self and not-self, equally real as psychical data, is the result of the association of feelings, which in themselves are quite indifferent, and only in the course of experience group themselves into the two worlds of matter and spirit by means of the two processes of autosynthesis and heterosynthesis. But, although this distinction between subject and object is a product of experience, and feeling is the one element of universal reality, it is impossible to reduce the one to the other, and to affirm, *e. g.*, the reality of subject without affirming also the reality of object, which is its essential correlative. Perception (external sensation) is the absolute proof of the reality which we call external. Thus are materialism and idealism equally excluded, and a positive realism

¹ "La vita e il pensiero di Roberto Ardigò," by Giovanni Marchesini. Milano: Ulrico Hoepli, 1907, pp. 388.

"Dottrine e fatti," by Bernardino Varisco. Pavia: Succ. Bizzoni, 1905, pp. 158.

affirmed, which obliges us to conceive an indeterminate psychophysical reality (*l'indistinto psico-fisico*) as substratum of the physical and psychical worlds. Everything in nature is subject to the law of change from a state of indeterminateness to a state of determinateness (not to be confused with Spencer's change from homogeneity to heterogeneity); every fact is something indefinite in relation to the succeeding moment, and something definite in relation to the preceding moment, so that the concept of a psychophysical substratum appears as a positive, scientific hypothesis; nay, as a necessary limit of inductive knowledge, and a natural result of experience.

Such is the theory of Ardigò. But, first of all, it does not seem possible to escape from agnosticism, for the reason that the law of change implies infinity. The distinguishing process, logical and natural at the same time, follows the so-called law of the infinite, which is the law of intelligence. The regression from distinctness to indistinctness has naturally no limits: there remains always a residuum, not specified, which appears beyond what is specified. This residuum, according to Ardigò, has no transcendental character, because it is nothing but the fact itself of the psychological function, as it appears in experience: the infinite is "the rhythm of intelligence." So the psychophysical reality is not the last term at which thought arrives, but it presupposes another term, in relation to which the indistinct psychophysical reality is itself something distinct: a term which is *unknown*, says Ardigò, but nevertheless positive and natural. But would it not be more appropriate to say *unknowable*? If knowledge implies the distinction between subject and object, how can we know what is prior to such a distinction—nay, how can thought conceive in their "dynamical continuity," which is the law of infinite nature, the numberless series of terms which precede that distinction? All we can know about them is that they must be in some way related to the present distinct elements of reality, or actual experience.

The only way out of the difficulty seems to be the admission that sensation is the only element of knowledge, as of reality, and that to feel is also to know; so that the psychophysical substratum would be something sensational, and the infinite distinguishing process always a continual change from one form of feeling to another. Such, indeed, seems to be the theory of Professor Ardigò. But such a theory would be rather idealistic than realistic in its consequences. It does not seem possible from a sensational point of view (notwithstanding the great difference between the ancient and this new sensationalism with its ideas of continuity and activity) to assert the objectivity and concrete reality of a physical, external world. Nor does the

doctrine of the indifference of sensations, which can be equally subjective and objective, help us towards a solution of the problem. Feelings can not be indifferently grouped with the external or the internal world. Certainly there are feelings, like heat and cold, which may be ascribed to an external body or to our own body. Certainly the distinction between subjective, internal, spiritual, and objective, external, material, depends upon the difference between peripheral and central organs. But the empirical origin of a distinction does not explain its value. The fact that we can not have the idea of a thing without having had the perception of it can not justify us in treating that duality as a mere product of experience. Nor can the fact that certain feelings may be included *by us* indifferently in the group of self or that of not-self justify the conclusion that all feelings are *really*, in their nature, indifferent. The truth seems rather to be that in every feeling, in the most simple as in the most complex, we find a subjective and an objective element.

The different solutions of the object-subject question are what distinguish the different forms of positivism. Perhaps the future historian of positivism will distinguish a naturalistic stage (Comte), in which psychology has no part and the subject disappears in the object; an agnostic stage (Spencer), in which the relation between subject and object is accepted as ultimate, but—although the importance of psychology as an independent science is fully recognized—the subject seems devoid of any activity of its own; a psychologic stage (Ardigò), in which there is an attempt to explain all reality only with psychical elements, sensations; and, finally, a realistic stage, in which the ultimate elements of reality are considered as physical and psychical at the same time—physical in their external relations and psychical in their inner being. To this last stage of positivist thought must be assigned the philosophy of Professor Varisco, who, applying Kant's critical point of view, has given new life to positivism, and shown the possibility of explaining scientifically and monistically the relation between subject and object, maintaining, nevertheless, their mutual irreducibility.

"Positivism is the only philosophy which there has ever been" (p. 6). The essence of positive philosophy, according to Professor Varisco, consists in taking science as the only datum and criterion of philosophic speculation; and all philosophies, even before positivism, are worth something only in so far as they have a solid foundation in scientific knowledge. Science has in great measure a problematic character, and will never arrive at that certainty which only *immediate* knowledge, the *primitive* knowledge included in every sensation, in every *Erlebniss*, can possess; but, while this remains abso-

lutely closed up in individual consciousness, *reflex* knowledge can be communicated to other people, and is capable of indefinite perfection. In any case it is the only knowledge at which philosophy can arrive; so that a serious philosophy must be founded on science. Now science implies necessarily determinism; and to refute this doctrine it would be necessary to show that physical energy is not permanent, which is impossible. All we know about the conditions in which psychical phenomena manifest themselves obliges us to assume that their manifestation and our existence are dependent upon physical phenomena; that is to say, those phenomena would not manifest themselves nor would we exist if certain physical facts had not taken place; and, since it is impossible in view of the conservation of energy to destroy a physical fact by destroying only its psychical antecedents, one must accept the doctrine of *physiopsychical determinism* (p. 27). Nor by this is meant that consciousness is a result of the physical world; it means only that physical facts are those which take place *between* several subjects, and psychical facts are those which take place *in* a subject (p. 24). The ultimate elements of reality, the monads, possess a psychical *potentiality*, which is the necessary substratum of consciousness (p. 26).

From this original potentiality evolves gradually all conscious life. The superiority of man to brute does not depend upon some special psychical faculty or activity possessed only by human beings. Although between the brute's *feeling* and man's *assertion* there is a specific difference, and not only of grade, this is no proof that the original psychical conditions in brute and man are not the same. Indeed, the special character of psychical life of producing absolutely new results, when psychical facts connect themselves in given circumstances with certain other facts, and the biological law of transformation, make it probable that those conditions are in every case the same; so that the transition from feeling to reasoning takes place naturally (p. 42). It is by means of volitional acts that immediate or primitive cognitions, consisting simply in the actuality of psychical facts, are transformed in reflex knowledge (p. 65), because only in virtue of volition does the subject acquire real self-consciousness and arrive at the knowledge of reality.

The assertion that a reality independent of myself exists, is nothing but the recognition or immediate expression of a fact, the fact that in sensation the subject feels itself conditioned by something else, apprehends itself as conditioned (p. 119, note). The existence of an external reality is shown by the unintelligibility of causal connections, by their independence of mental connections. In every act of foreknowledge is implied the principle of causation, which can be

expressed as follows: If the same circumstances will reproduce themselves, the same facts will happen again (p. 91). But this is not a principle of reason, evident in itself: if it were so, it could not give us any knowledge of external reality, because "reasoning implies the absolute unchangeableness of concepts," while in reality "something changes" (p. 96). Reason, whether it undertakes or not to know reality, whether it is occupied in pure or in applied reasoning, possesses the notion of causation, but is incapable of saying anything about its value as cognition (p. 98). That principle, like every other knowledge of reality, is not a product of reason, but a result of experience. It follows that of its future validity we have no apodictical certainty. Nor can we ascribe to it apodictically any grade of probability; to establish a probability, one must start from something certain (p. 120). But the impossibility of giving a rational justification of the principle of causation does not diminish the value of physical science. We must abandon the false assumption that there is only one kind of knowledge, *i. e.*, rational knowledge (p. 122). Although we can not explain physical necessity, we know, nevertheless, that physical facts are determined by circumstances and by the facts immediately preceding (p. 138), and this remains an indestructible datum. We can not know the *why* of the sequences of facts (such a question is itself absurd), but we can study the *how*, and this is the object of physical science. It is not reason which has created the belief in a certain class of expectations, those which constitute science; but this belief is not less justified because it is founded on an inevitable necessity of fact. Hume's criticism of the principle of causation does not necessarily lead to skeptical conclusions. Laws are our conceptions of the sequences of facts, conceptions which can change without any change occurring in those facts; but this shows only that laws are relative to our apprehension of physical facts, and that external reality is independent of rationality: it does not show at all that in this external reality there is not some physical necessity, and that science can not verify laws. So that "the attempt to apply physical laws for excluding determinism, and for giving a rational explanation of a reality, which, whatever be its origins, appears to us as something profoundly irrational and inexplicable, resolves itself into a vicious circle" (p. 152).

The irrational and inexplicable character, which Professor Varisco ascribes to the external reality, has nothing to do with the unknowable of agnosticism. It means only that physical reality does not depend upon reason, that it is a datum which reason finds opposing itself and must accept as something existing out of consciousness.

GUGLIELMO SALVADORI.

THE FUNCTION OF PHILOSOPHY AS AN ACADEMIC DISCIPLINE

IT is a deplorable fact that the department of philosophy does not usually occupy the place in our universities that it ought to have. It does not command the confidence of the other departments, but is regarded with dislike and distrust. Nor do the students, as a rule, think more highly of it; while in the mind of the general public philosophic thinking is a synonym for futility. This can not be remedied unless there comes to prevail generally among teachers of philosophy an altered conception of their proper work. The difficulty is, it is true, complicated by the diversity of views as to the nature of philosophy itself. Some think that philosophy is a synthesis of science, and results from the putting together of the results of special researches in all realms; that its task is the unification and organization of knowledge. Others contend that it has its own special sphere, and identify it with logic, epistemology, ethics, or metaphysics. Upon this controversy, of course, I offer no new arguments; I merely mention the subject for the purpose of explicitly admitting that all these disciplines are important, and that researches ought to be carried on in all these provinces with the utmost energy. I do not insist that they fall within the realm of science, although I really think so, and am even willing that all of them shall be called philosophy. It is enough for my purpose to make the point that in university teaching the emphasis should not be upon any of these, but that philosophy should magnify its unifying and synthetic function.

In dealing with the student it has a perfectly definite task to perform. This task is that of helping him to organize the content of his mind, and to attain to a comprehensive world-view. If the mind is to grow as it should, two things are essential: there must be some scheme by which the mental life can be organized, and this scheme must be flexible, capable of revision. A great many enter college without any general theory of life, and they there acquire a certain amount of information in detached masses: but failing to find any means of coordinating and relating together the things they learn, they finish their formal education with their mental content almost as unorganized and jumbled together as when they began it. Others bring with them a philosophy in the shape of a religious theory; but since this theory seems to them essentially inflexible and not easily adjusted to facts which can not be doubted, it is reluctantly surrendered. The result is a sense of loss which is deeply felt, but not easily avowed. Others still retain their childhood view

with great tenacity, but, not being able to find in it a place for the new facts, carefully keep it separate and apart. Here, too, there is a deplorable schism in the inner life. The man is never wholly there in his thinking on any subject. When the facts of science and the cherished theory of life are felt not to agree, not only does the mind fail of happiness, but it also necessarily fails to attain the highest development and efficiency.

To whom, then, in his real need, can the student look for help except to the teacher of philosophy? A tentative world-view is necessary in order that one's isolated bits of information may be brought into relation. One needs a place in which to put the things he learns. Such an organization as results from the formation of a provisional scheme, a flexible theory of the world, is a necessary condition of the normal unfolding of the mental life. The best method of meeting this need only experience can determine. Whatever plan is used, provision must be made for revision. The ideal organization of the mental content is a sort of republic which can grow both by the development of its component states and by the admission of new states. In such a unitary world-view the sciences would have their places, and the cosmic outlook would alter as these sciences grow. Spencer's ideal of philosophy would then be the guiding star: "Science is partially unified knowledge: philosophy is completely unified knowledge." T. H. Green's definition is equally good: "Philosophy is a progressive effort toward a fully articulated conception of the world as rational." As such it is a process, a series of approximations extending through the whole period of mental development. But without some comprehensive theory to start with, how can such a development begin? The man who is to pass through an ideal intellectual career must constantly reorganize his thinking, but he can not even enter upon such a career without some provisional organization. The view here advanced is that it is the specific and primary business of the philosophic department to assist the student to that unification of his mental life, to that organization which is the condition of growth.

Now, the philosopher can not do this work if he is himself merely a specialist, if he is absorbed in the technical criticism of minor matters in logic or psychology, or in epistemological quibbles. Whatever be his special training, he should be one of the broadest men in the university. Ideally, he should have a good foundation in one of the physical sciences—physics, for instance; and also in psychology, since the latter deals with sense impressions and their interpretation; that is, with the channels through which the other sciences get their data, while without some knowledge of biology he is, as a

psychologist, of course not properly equipped. To be sure, the philosopher can not know all science, but neither can the chemist know all chemistry. But it is perfectly possible for one mind to be acquainted with the leading conceptions of the various sciences, and to know what their larger problems are, and it is precisely with these that the teacher of philosophy is concerned. In his synthetic function the teacher may favor any scheme that the student can most easily grasp, but it must above all be one that can be revised, and one that does not disparage or depreciate science. As an example of what the philosopher's temper ought not to be, I would merely refer to Ward's "Naturalism and Agnosticism." A great part of what the author says is perfectly true, and yet, though he denies that he disparages science, the spirit of disparagement is there. And no philosopher who writes and speaks in that temper can hope that his department will ever become the clearing-house of the sciences in his university. Yet this is a matter of vital importance to him, since he can not dispense with the cooperation of his colleagues. He needs them as much as they need him. The present lack of confidence and of cordial cooperation between the philosophers and the men of science is evidently bad for all concerned. The physicists and chemists, for instance, are discovering, now that they have begun to examine the substructures of their sciences, that they have entered the realm of philosophy, and they will find out that they can not safely ignore the thinkers who have preceded them. When they affect contempt for all previous efforts, the result in the case even of the most brilliant specialists is not conspicuously successful; witness the raw psychology and the crude substitute for metaphysics of so able a man as Karl Pearson. It is said that every man at some time in his life thinks that he can preach; and there is a similar native confidence in the ability to philosophize. The philosophers and preachers are neither envious nor jealous, and have no objection whatever to the ambitious efforts of the novices; but their experience in such cases has not destroyed their faith in the value of training in this, as in other fields.

On the other hand, the teacher of philosophy can only do his work by the help of broad-minded men in other departments. The ideal situation is one in which the teacher of every science leads the student to see the larger relations of the subject, especially with the disciplines that are closely akin. The relations of physics, chemistry, astronomy, biology, and psychology ought to be suggested by the specialists in those fields. It is not necessary for them in doing this to give special lectures on these general themes in the philosophy lecture-room, although it would be a happy thing if they

did so. The various fields of investigation are more or less arbitrarily defined, the isolation being merely for convenience of research and teaching, and not absolute. If the philosophical teacher had the sympathy and cordial cooperation of his colleagues, if they made their students feel that each science is a part of philosophy, an organic constituent of the one body of truth, his own work of suggestive synthesis, of organization and systematization, would be performed with greater ease and thoroughness. The result would be gain for the specialists as well as for those whose business is with the problem of the whole. For it is a well-known, but not sufficiently appreciated, fact that the current of interest flows downward, and that no one is more eager for facts than he who wants them, partially at least, for the light that they throw upon larger problems, such as that of man's place in the cosmos. And it is precisely because they ignore these larger considerations that stimulate the interest of the student and enable him to see the bearing of their researches, that some of our best men of science are such poor teachers. Facts have value because of their significance, and they are significant because they affect some interest. And the great, permanent, research-inspiring, and research-sustaining interest is the philosophic. Utility and commercial value are important and worthy considerations, but they alone can not beget the enthusiasm for knowledge and the ardor that sustains those laborious investigations which are such important factors in our civilization. Philosophy, as Plato understood it, the endeavor of the mind toward such a view of the whole as will enable it to orient itself and to see human affairs in proper perspective, is, therefore, a great fertilizing power, and deserves to be nourished for the vitality that it gives to science.

It must not be forgotten that philosophy, to have constructive value, to render the essential services which naturally devolve upon it, but which it does not now adequately perform, must emphasize the unity of science, not undermine it. It may properly make plain that human knowledge is a construction, but it deserves the contempt it receives if its final effect is to impair confidence in the validity of those inferences which we have to make in order to live. Moreover, philosophy is more a matter of teacher than of subject. As there is no magic in Hebrew literature through which readers of it are infallibly made good, so there is nothing in the history of philosophy which, regardless of the way in which it is taught, inevitably produces those large, judicial, comprehensive views at which philosophic instruction aims. It may be presented in such a way as to leave the impression that it is the record of a series of futile and profitless efforts. Yet, as we know, it is really a history

of the evolution of the great ideas of the human race, of the development of that form of life which we call intelligence; and, properly handled, nothing is more concrete or has a greater culture value.

It has long seemed to me that as a means of effecting that organization of the mental life which is a condition of normal growth, the student should be encouraged to study some one system well. If he becomes for a time a disciple, so much the better; for he will then know one system from the inside, and he will have set up a pair of ordinates in the flux, by reference to which all other systems can be understood. He who never sees plausibility in any world-view, who has no sympathy with any, understands none. But he who has once entered into a system, can then get at least partially out of it, and make the necessary concessions to other views, so that the danger of partisanship and fanatical discipleship will be escaped. He who follows this method must in each case decide on the system to be used as a point of departure. If he selects one of the physical or mechanical philosophies, his task is to supplement or expand it so that life, mind, and purposive action shall have a natural place in it. Human life is obstinately teleological, and since men and women are parts of nature, and not importations from some realm beyond the universe, their aspirations, their foresight, their endeavors after rational conceptions and rational conduct, can no more be ignored than matter and motion. The physical philosopher must, therefore, expand his scheme so that all these shall be included.

On the other hand, if one begins with one of the great moral philosophies, that of Aristotle, for instance, the problem is reversed; it is to find a place for physics. In any event, there is no question of final solutions. What is to be aimed at is the production of an awareness of the cosmic setting of human life, a widening of the intellectual horizon to the utmost, a knowledge of past efforts at unitary views sufficient to serve as a protection from philosophic diseases, an understanding of what the great problems are, and the awakening of the deathless desire to know. For among all the things that are good, there is nothing better than the lifelong endeavor of the mind to get its bearings in the universe, than man's search for the thoughts that give dignity to human life. If we discern the time, if we conceive the occasion rightly, we shall retire into the background, or hand over to the special sciences, the greater part of these minute mathematical, logical, and epistemological researches which are now so prominent, and magnify our proper function, which is to assist in the development of that finest flower of culture, the philosophic mind.

GEORGE R. DODSON.

ST. LOUIS, MO.

DISCUSSION

ULTIMATE HYPOTHESES IN PSYCHOLOGY

THE sciences of physical nature, with their laws of motion and conservation and the ether, have reached a much higher degree of organization than psychology, and their methods are consequently more analytic. It is a goal of development in the scientific view of the world to be able to describe all phenomena in a single set of terms whose meanings are interdependent. No doubt it is too soon to hope that the science of psychology and the disciplines related to her possess such ultimate hypotheses. The attempt to formulate them prematurely and thus change the plodding method of synthetic generalization into eagle-winged analysis is as yet likely to fail. Too few of the facts are in and too few of those which have been gathered are thoroughly understood.

It is notorious, however, that every science works and grows, from its earliest beginning under the rubrics of some far-reaching generalization or other, and as the sciences nearly all sprang from philosophy, their original generalizations were usually taken from the rich thesaurus of the earlier discipline. Later, they have lent their aid to each other in this respect.

It means a step forward when these earlier, more or less unconsciously accepted, conceptions become the objects of conscious analysis and criticism. Such steps were taken in psychology when the doctrine of mental faculties was criticized and rejected, when the idea of a substantial soul was revised, when the issue was raised between structural and functional psychology, when the term consciousness was first brought into the focus of discussion, when the reflex arc concept was examined with reference to its availability for purposes of organization in psychology, and when such terms as knowledge, feeling, and will are more exactly defined. Professor Calkins's papers on "Psychology, What is it About?"¹ and her other papers² on related topics belong to this field of discussion.

In the sciences of physical nature the demand for comprehensive generalizations has led to three types of conceptions, namely, to conceptions of nature as discrete, as continuous, and as a totality. The atom theory, the ether hypothesis and the law of conservation may be said to represent these lines of development. With the introduction of the atom theory into modern physics came also the concept of force based on the notion of motion. What had been the con-

¹ This JOURNAL, Vol. V., p. 673, and Vol. VI., pp. 12, 64, 113.

² "A Reconciliation of Structural and Functional Psychology," *Psychological Review*, Vol. XIII., and *Der doppelte Standpunkt in der Psychologie*.

servation of motion became the conservation of force. The resulting dualism remained a practically unsolvable problem until the doctrine of an ether was formulated and the atom was conceived as a form of motion in this universal and continuous medium. It may throw some light on the problem of ultimate generalizations in psychology if we ask whether analogous results are to be reached in its field. Psychologists have conceived sensations and sought to show how by complication and fusion, association and contrast, sensations become the relatively more concrete and complex contents of experience. We have doctrines of relational and affective elements which supplement the sensations in the description of states of consciousness. Psychology has also conceived all things mental as functions and the mind as a system of functions, analogous to the physical doctrine that all matter is a form of motion. We have, again, a conception of consciousness as a sort of continuous medium in which sensations and functions are forms and modifications. The principles of individuality and totality are evident in such conceptions as mind and self. It looks as though discreteness, continuity, and totality are logical demands which we more or less unconsciously seek to satisfy in the organizing conceptions of psychology no less than in physics, and I take it that the fundamental conceptions of the science of mind are not mere analogies based on the older and more highly organized physical sciences, so much as necessary results of the attempt to conceive sentient life scientifically. For science proceeds by analyzing the complex into elements no less than by reducing to a single law whatever admits of synthesis, by finding continuity where there are apparent gaps no less than by finding gaps where there is apparent continuity, and by organizing its results into unique totalities. It is not possible to prescribe ideals for any special science further than to point out the laws of consistency in accord with which they will be found, but in psychology considerable progress in this direction has already been made. The science of psychology is to-day one huge welter of conflicting demands, among which the most recent or the loudest voice is most apt to receive attention.

This is not an epistemological or metaphysical problem so much as one in the logic of psychology, and we hope it may not be unwelcome to the author of the papers on, "Psychology, What is it About?" if we set down here a series of reflections on her discussions. In the first place, psychology is defined in these papers as the science of self, and we understand by that term the individual human self, rather than selfhood as a general aspect of experience. All studies of sentient life below that of man must be based on the

psychology of self and be controlled by it. That this has not so far been the case is evident in the studies of comparative and genetic psychology. This may be due to the undeveloped state of genetic and comparative psychology, and in the end it may prove that continual reference to the individual self will be a great aid in this field. But it needs to be pointed out that in making the individual self the ideal of psychology we are making it our aim to describe a *whole* rather than any special aspect of many wholes, and so far at least our aim is philosophical rather than scientific. The significance of this fact seems to the present writer evident, and especially so when we ask what descriptive value the term self would have in dealing with the process of perception, or impulse, or any other special topic of psychology.³ The self, so defined, is a principle of neither discreteness nor continuity. If the self be conceived as a special form of activity or special type of function analogous to Descartes's vortical conception of the physical universe or Lord Kelvin's vortical theory of the atom, the conception would have a descriptive value in all problems in which the self-thought or the self-function is a factor. But in the papers before us the self is rather a complex whole which includes all psychic functions.

This point may be briefly stated in the form of a question, *Is the self a process, or does it have processes?* If by the self is meant simply the self-thought, a particular process among the many processes which make up the psychic life, it will have descriptive value. But in this case the psychology of self will constitute only a special chapter of the science. This chapter deserves a much larger place in psychology than the majority of writers have seen fit to give it, and it is one of the merits of Miss Calkins's "Introduction" that it is in this respect an exception to the general rule. The origin and growth of the self-thought and its controlling function in deliberation, will, and the ideal emotions constitute one of the most interesting and, for the entire group of *Geisteswissenschaften*, one of the most important of all the chapters of psychology. If, on the other hand, the self is conceived, not as a process or function, but as that which *has* processes, if it be conceived as that of which all processes are the predicates, the present writer is at a loss to see what advantage it can have over a number of other convenient rhetorical or grammatical devices, such as the psychic life, consciousness, the soul, the individual, etc. In this sense we should use the term only as the term nature is used in such expressions as natural selection or the laws of nature. And even then, is it not apt to prove misleading? Is it not apt to prepossess the minds of students with uncritical metaphysics?

³ For a similar criticism by M. F. Washburn, see this JOURNAL, Vol. II, p. 715.

That Miss Calkins has in mind a philosophical rather than a scientific use of the term self was first suggested to us by the passage in which she replies to the criticism of self-psychology by Angell, that it places a needless gulf between "the self as mind and the self as body for the crossing of which we are forthwith obliged to spend much needless energy, as the gulf is of our own inventing."⁴ The reply reads in part, "As psychologists, once more, we are not concerned with the philosophical problem of the relation of body and mind; we take for granted the existence of the two, and their relation, on the ground of observation behind which we, as *scientists*, have no business to probe."⁵ I understand that the term self is here used as interchangeable with the term mind, and body in that case must be one of the meanings of the term not-self. "As *scientists*, we have to start out from the standpoint of every-day adult consciousness: and for this the distinction between mind and body is already clearly made." Now all this reads like philosophy. If we take the plain man's shifting dualism of mind and body and put it through a fixing bath out of which it comes a distinction between self and body, we certainly introduce into psychology the control of an organizing conception which will influence the phraseology and the classifications of the science from beginning to end, and we do this without first taking up for careful criticism a popular and naïve dualism of very doubtful validity. It is one of the problems of psychology to trace the origin and growth of body and mind as ideal constructs. It is one of the problems of philosophy to investigate the validity of these constructs. It is another of the tasks of psychology to describe the genesis of the dualism of self and not-self. Indeed, we go much farther than the plain man does when we identify self with mind and separate it in conception from the body. The plain man sometimes speaks of his body as a thing which he possesses, and more frequently still he speaks of another's body as belonging to that other. But where he refers to his own body in this way once he refers to it many times as an identical portion of himself. It is much easier and more natural to distinguish between the mind and the body of *another* than to distinguish between the two in one's own case, and every one must have observed that we speak of ourselves as having minds and of losing our minds just as easily and naturally, to say the least, as we speak of ourselves as having bodies or of losing our bodies. What shall be said of a man's identifying himself with his bank account, his bonds or his railroad system? An Illinois farmer remarks, "The rains haven't hurt me

⁴ Angell, "The Province of Functional Psychology," *Psychological Review*, Vol. XIV., p. 82, note.

⁵ This *JOURNAL*, Vol. V., p. 15.

yit," meaning that they have not washed the soil off his land or deposited sand on the top of it. Similarly a Congressman identifies his constituency, the people who support him with their votes, with himself. Any attempt to rob him of their patronage is an attack upon himself. It is a psychological fact that I identify with myself, not only my body, but whatever belongs to me, whatever I have produced, my family, my friends, my scientific theory and religious hopes, etc. As psychologists, ought we not to keep within the empirical use of the term self? If we go beyond the self as experience and by conceptual delimitation exclude from it the experience of body and the material world generally, are we proceeding as scientists or as philosophers?

But Miss Calkins holds that "all consciousness is self-consciousness," although of course the self is not equally explicit in all states of consciousness. Only in the sense of "the ever-present, inchoate self-consciousness of each experience" is the self omnipresent in psychic life. In this sense "one never is conscious at all without an awareness, however vague, confused, unanalyzed, and unexpressed, of oneself-being-conscious."⁶ In an article entitled, "Feeling and Self-Awareness," the present writer once argued that self-consciousness is vaguely and implicitly present in all feeling, and, since all consciousness is affective, in all consciousness. But this vague self-awareness of feeling is identical with the immediate experience of value. In the emotion of fear, there is an immediate sense of value and, *logically speaking*, all value involves a point of reference which we may call the self. In the emotion of fear, however, the self is not involved as an object of consciousness, and the self-reference in it is simply the finality of all impulse. We wish to emphasize the fact that this immediate experience of value, this purposive view of the object of consciousness, is a matter of universal experience and a matter with which psychology especially has to do. Whether it is this fact that Mr. W. Boyce Gibson⁷ charges Miss Calkins with neglecting, we can not be sure. Whether it is the psychological teleology of all conscious processes, emphasized by Spencer and the school of biological psychologists, is not clear. In the psychology of Spencer psychological terminology is often little more than a fish-net to cover the nakedness, or a series of plasters to fill in the gaps, of biology.

However this may be, the teleology of all mental states and processes is one of the distinctive marks of psychological data. In its

⁶ This JOURNAL, Vol. V., p. 68.

⁷ *Psychological Review*, Vol. IX., p. 570, f. 1.

⁸ In his review of "Der doppelte Standpunkt in der Psychologie," *Mind*, 1906, pp. 106 ff.

universal form it is nothing but purposive impulse, and yet it is just possible that in this immediate experience of value we are to find the chief differentia of the data of psychology. If this were all that Miss Calkins meant by defining the subject as the science of self, there would be much to say in favor of her view. Psychology, from this point of view, would be the science which deals with the various contents of experience in so far as they possess immediate value. The data of psychology surely ought to possess some distinguishing mark, and here is a characteristic which falls entirely within consciousness and distinguishes psychological data from those of all other natural sciences. Not all values are immediate and not all immediate things are the exclusive data of psychology. Immediate values are the data of no science except psychology. To define psychology as the science of selves seems to make necessary much further exposition to make our meaning intelligible, and it assumes (what is not *prima facie* evident and what many are not ready to grant) that the immediate experience of value is an implicit experience of self. Self-consciousness, as an explicit reflective experience, is an experience of values—psychologically speaking, individuality seems to be a function of feeling—but not all immediate values can be described as self-consciousness without begging a question with reference to which unanimity of opinion does not exist, and without being guilty of the psychologist's fallacy of reading into the immediate experience of value distinctions which belong to a special form and stage of mental life.

Professor Calkins speaks of "the basal fact of psychology" as the self, "immediately known as persistent, inclusive, unique, and related."⁹ A considerable portion of her third paper is devoted to the elaboration of these "positive characters."¹⁰ "Every one admits . . . that identity can not be attributed to ideas . . . because these are by hypothesis evanescent and fleeting. It follows that identity is a character of the self. . . . But if one scrutinize the real meaning of the statement, 'memory—or reason, or will—is a persistent function,' one finds it to be simply this, that one and the same self at any time may remember, or reason, or will." "The self is, in the second place, not only persistent, but inclusive; it is, in other words, a complex of ideas, functions, experiences." "A third significant character of the self is uniqueness . . . experienced most clearly in our emotional and volitional consciousness." In the fourth place, "I think of myself not only as unique, but as related, not only as a this-not-another, but as a this-in-relation-with-another." This "immediately experienced self-relatedness" is a character to be

⁹ This JOURNAL, Vol. V., p. 114.

¹⁰ *Ibid.*, Vol. V. pp. 65-68.

admitted and not argued about by the psychologist. "I can not, indeed, describe or distinguish myself except in terms of my relatedness to other selves; if I drop out of my conception of myself the consciousness of being child, brother, friend, and citizen, I simply lose myself." "I wish to emphasize the truth that all these characters of the self are immediately experienced. Only as such, I hold, have we a right to use them in describing consciousness. For though psychology, like every science, deals with concepts reflectively formed, not with immediate experiences, yet the peculiarity of psychology is precisely this, that it has to do with the concept of *immediate experience*."

We take the liberty of interpreting the last sentence in the light of the contributions which Professor Calkins has made to the science and literature of her specialty, where she seems to us to deal masterfully with some of the immediate aspects of experience denoted by the concept of immediate experience. Psychology is not an analysis and synthesis of concepts comparable with the points, the number series, the orders and group relations of mathematics. It deals with an objective order which it seeks to describe scientifically. As to the other contentions of the passages just quoted, however, we wish to point out that neither the persistence, the inclusiveness nor the relatedness of phenomena is ever immediate. They are not immediate in the case of a stone or a star, and just as little so in the case of self. The *processes of judging* that the self possesses these characters are immediate—that, unquestionably,—and it may be that the practise of psychological reflection has become so habitual to some of us that we sometimes confuse the immediacy of the process of judging with the immediacy of the object or content of judgment. The present writer could as easily accept the proposition that the immortality of the soul is an immediate deliverance of consciousness as that the persistence, inclusiveness, and relatedness of the self are immediate. It certainly is true that I can not describe or distinguish myself except as related to other selves, and also that the judgments expressed in the descriptions are as processes of thought immediate. The predicates of my *judgments about myself* are all relations which I sustain to others. But this means that my knowledge of myself, like my knowledge of my neighbor's self is mediate, not immediate. The immediate experience of the process of conceiving immediate experience is made up of certain sensations of touch and vision, certain feelings of relation, and certain affective qualities, but these are, of course, only a special instance of the aspects of experience denoted by the concept.

Perhaps the clearest and most definite concept of psychology is

that of sensation, the simplest value ascertainable by psychophysical methods. In Locke's theory of simple and complex ideas the sensation is an ultimate and irreducible element of knowledge, and it is so conceived by the majority of psychologists. Simple ideas are kinds of sensations or impressions. Newton, for example, thought that there are seven kinds of color sensation in the spectrum, but as some of these are derivable from other colors by mixing, the doctrine of three primary colors displaced the seven-color theory. Professor Titchener is right in saying that there are as many colors for psychology as there are distinguishable types of color value, and of these there are some 3,000 or more. Shall we say then that color experiences are really composed of these sensations? Certainly, but this does not tell the whole truth about the matter, because sensations are discrete and the spectrum is continuous. This large figure represents the number of acts of discrimination possible within the range of the spectrum, but the spectrum itself is a continuum of values in which points or lines of demarkation are arbitrary. Is the self of any value in the descriptive psychology of color? To say that colors belong to unitary complexes of experience called selves is to say just about as much (and as little) as to say that all atoms belonging to a unitary complex of processes called nature, that is, colors belong to conscious persons or selves conceived as centers of extra-psychological relationship, and as distinct totalities. Now there are two psychological problems which this conception of the self leaves entirely untouched: (1) what is the principle of continuity within the self? and (2) what are the elements into which its manifoldness is resolvable? Of course the definition of a science need not include its entire content, but it should include the differentia of the science.

As the principle of continuity within the self, we have become accustomed to the term consciousness. But is it consciousness or is it value? Perhaps some will say there is no difference, but we think there are differences. In the first place, consciousness is no longer an abstract noun, like roundness or smoothness, based on the character of being conscious which is predicable of sentient organisms. It is rather the name of an existence analogous to the matter which possesses roundness or smoothness. It is a thing possessing properties and relations such as the property of sentience and relations to the body. Value, on the other hand, is attributive to objects, and in making it the principle of continuity in psychology we should be eliminating from the science subjectivism in its most objectionable form. Again, value is a genuine aspect of all existences, while consciousness is not, and in making an aspect of existence the proper subject-matter of psychology we should be conceiving the science as all other special sciences are conceived nowadays. For

the special sciences deal with special aspects of all things rather than with special groups of things. Again, value admits of and suggests both a structural and a functional analysis, just as the ether does in physics, while the same can not be said with equal propriety of consciousness. Finally, in the world of values the self is either a special form of function, or a structure, just as the atom or any other discrete totality in the physical world is either a special form of change in the ether or a special structure.

Psychology so conceived would comprehend both the conditions and the manifestations of the immediate experience of value, as well as its actual contents. In short, it would include all that it at present includes, and furnish points of easy relationship to both biology and the *Geisteswissenschaften* which depend upon it. Nearly the whole of physiological psychology is comprehended in the antecedents (or conditions) and consequents (or manifestations) of value. The analysis of value and its natural history or growth, taken together, would comprehend a doctrine of elements, a doctrine of combining principles, a description of mental complexes of various types and a doctrine of the self or social consciousness. Indeed, psychology would be very much what Miss Calkins and others conceive it to be. Its definition and some of its terminology alone will have been slightly altered.

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REVIEWS AND ABSTRACTS OF LITERATURE

The Animal Mind. A Text-book in Comparative Psychology. MARGARET FLOY WASHBURN. New York: The Macmillan Company. 1908. Pp. 333.

The study of animal behavior can be attacked from two points of view, the physiological or mechanical, and the psychological. The one has for its aim an immediate mechanical explanation of the phenomena involved, the other an immediate psychological explanation. The former proceeds from known chemical and physical principles and is based upon concepts of matter and energy gravitation, chemical affinity, electricity, etc. The latter proceeds from psychological principles, established in the study of human mental activities, and is based upon concepts of psychic elements. While these two fundamental classes of concepts may eventually prove to be merely different aspects of the same reality, they are, in the present state of knowledge, certainly not mutually exclusive, as some prominent writers would have us believe.

Little is known about either of these classes of concepts. In the last analysis there is as much mysticism connected with the postulates upon

which physics and chemistry rest, as there is with those upon which psychology rests. I can, therefore, see no reason for considering research based upon chemicophysical laws in the light of reality, and at the same time relegating those based upon psychic elements to the realm of mysticism, as many are prone to do.

While there is at present no hope of a final explanation of animal behavior, we shall undoubtedly have a clearer understanding of the phenomena involved by attacking the problem from both the mechanical and the psychological point of view than we would have by restricting work to either to the exclusion of the other.

In the last few years there has appeared a considerable number of papers on this subject, some dealing with it from the one, some from the other point of view, and some fortunately comprehensive enough to include both. In "The Animal Mind," the author has reviewed and systematized these papers together with the more important of those of earlier dates, with the idea of bringing together all experimental evidence bearing on mental activities in animals below man.

In the first chapter, dealing with "The Difficulties and Methods of Comparative Psychology," it is pointed out that the only way open to investigate contents of consciousness in minds outside of one's self is to infer the character of mental states and activities from experiences related by means of language and bodily activity under given conditions. Such inference is, of course, more and more questionable as one proceeds from the higher organisms with language, structure, and behavior similar to those of man, to the lower without language and very different in structure and behavior.

In the second chapter, "The Evidence of Mind," the author considers various criteria which have been suggested as tests of consciousness, *e. g.*, response to stimuli, choice, adaptation to an end, variability, "a variation in behavior that shows definitely the result of previous individual experience," ability to learn, rate and kind of learning, and structure. All of these characters are shown to be inadequate in themselves as criteria of consciousness. "We know not where consciousness begins in the animal world. We know where it surely resides—in ourselves—we know where it exists beyond a reasonable doubt—in those animals of structure resembling ours, which rapidly adapt themselves to the lessons of experience. Beyond this point, for all we know, it may exist in simpler and simpler form until we reach the very lowest of living beings." The author does not definitely mention plants in connection with this conclusion. They are, however, included in the phrase, "lowest of living organisms"; and the arguments thus far presented can be applied to plants as well as to animals.

Chapter three is devoted to a comparison between the mental activities in *amœba* and *paramœcium*, if there be such, and those in man. The author points out that if these simple organisms have a mind at all they can have not more than three or four qualitatively different conscious experiences, while a human being has "several thousand."

In chapters four, five, six and seven, the author deals with sensory discriminations, laying particular stress on the chemical sense and the senses of hearing and vision. The two following chapters are devoted to a consideration of space perception. In discussions on both sensory discrimination and space perception the author begins with the lowest group of animals and proceeds to the higher, briefly reviewing the literature on the subjects under discussion and picturing the mental states and activities of the various groups of animals, assuming in every case that they are conscious.

In chapters ten and eleven, it is shown that modification of behavior occurs in all living organisms. The chief difference between the lower and higher organisms with reference to this is largely a matter of degree and time-rate. In the higher the behavior can be modified much more rapidly and extensively than in the lower.

The final chapters of the book deal with the complicated psychic phenomena, memory, ideas, and attention. The author holds that while the reactions in the lower forms can be adequately explained without assuming "memory in the sense of having ideas of absent objects," the reactions, at least of some of the higher animals, indicate that they are endowed with memory in this sense, although it is a difficult matter to prove.

"Attention, in its simpler form, seems to be met with even in the lowest living organisms; but it seems unlikely that attention in the final form, in which the focus of attention is occupied by an idea or train of ideas, occurs among lower animals. While ideas are probably present to some extent in the minds of the higher mammals, they are hardly so far freed from connection with external stimuli that the animal can shut out the world of sense from its consciousness and dwell in a world of ideas."

In general the author shows that, while experimental evidence proves nothing with reference to the presence of consciousness, it seems to indicate that consciousness may be found in all animals, and that, with reference to complexity, the mental states and activities in animals, including man, form a continuous series from lowest to highest.

"The Animal Mind" is intended primarily as a text in comparative psychology, and it seems well adapted for this purpose; but it will also be found indispensable to all workers in the subject of animal behavior, and ought to be read extensively by physiologists.

The bibliography, consisting of 476 well-chosen titles, will be found valuable. Additional pages dealing with definitions of psychic elements as understood in human psychology would add much to the value of the book from the standpoint of the layman.

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La psychologie inconnue. Introduction et contribution à l'étude expérimentale des sciences psychiques. EMILE BOIRAC. Paris: Félix Alcan. 1908. Pp. 346.

The chief concern of this book is to rescue Mesmer's doctrine of animal magnetism from the discredit into which it has all but universally fallen and to rehabilitate it on the basis of sound experimental procedure. Largely from his own personal experiences, which include observations at sittings with Eusapia Paladino, the author is convinced that a psychic force, to be thought of on the analogies of electricity and magnetism, emanates from the human body, this force coming into evidence only under peculiarly auspicious circumstances or through persons unusually gifted in this direction. The author himself claims to be one of these fortunately endowed individuals through whom this force becomes revealed. On the basis of experiments and chance happenings, few in number he is obliged to acknowledge, but conducted, he believes, under the most rigid precautions against error, the author professes to have produced anesthetics, pricklings, contractures, hypnosis, transference of thought, movements of inanimate objects, and more of the same sort, by means of emanations from the tips of his fingers or from his body as a whole. These emanations, it is alleged, can be conducted through copper wires, can sometimes be collected, and under favorable circumstances can be transferred to other individuals by contact or even by proximity.

Such claims as these are common enough as coming from the believers in the occult sciences. The only merit that gives this volume a claim upon our attention beyond that of other writings of like order lies in the fact that the author makes professions of perpetual adherence to the most rigid precepts of experimental procedure. His discussions of general methodology and of precautionary devices to be employed in his special field are, it seems to me, unexceptionable. Moreover, we can all agree with the author that there may be unknown forces about us whose presence is as hidden as the image upon an exposed photographic plate and which, like this latent image, need their peculiar developing agencies. And certainly we all admit with him that unbelievers will be convinced of the reality of such alleged forces only when the evidence for their existence is secured after the same manner as is that which brings conviction in the realm of the orthodox sciences. But when this much is said, one may still suspect that in investigations of this kind theory and practise are as likely to get sundered as they traditionally are in the world of morals. It is, indeed, possible that there are radiations of energy from the human organism and that later demonstrations of their actuality will convict present-day skeptics of a too stubborn conservatism; it is, indeed, possible that hypnotic phenomena are occasionally produced when all traces of suggestion and of the usual mechanical means of hypnotization have been excluded; it is, indeed, possible that the failure to recognize these human radiations rests upon the fact that the few individuals who can adequately wield them come

rarely in the presence of the appropriately sensitive subject; but, notwithstanding, most of us, if, indeed, we are not wholly unsympathetic towards these views, are yet forced to preserve our intellectual integrity by maintaining a spirit of scientific caution and by believing that further careful investigations in these fields will reveal hitherto unsuspected sources of error rather than the existence of a psychic force whose still unknown qualities justify the pretentious title of the volume before us: "La psychologie inconnue."

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Plato's Psychology in its Bearing on the Development of Will. MARY HAY WOOD. London: Henry Frowde. 1907. Pp. 62.

This study is a "thesis approved, in its original form, for the degree of Master of Arts in the University of London," and is otherwise accessible as published in *Mind*, N. S., Nos. 65 and 66 (January and April, 1908).

The author does not find the notion of will as such in the writings of Plato, but pursues the exposition of his thought in quest of those complex functions which we recognize as pertaining to the will. The discussion falls under the following heads: "Introduction," pp. 3-9; "Mental Activity—Whole and Part," pp. 9-12; "Appetite," pp. 12-13; "Emotion. (a) θυμός, (b) ἔρως, (c) δόξα," pp. 13-36; "Thought and Reason," pp. 36-42; "The Will," pp. 42-62.

In the last section there is much of interest to the student of philosophy, whether he happens to be greatly concerned about Plato or not; for a relatively naïve thinker, that is to say a thinker who follows connections of ideas not fully stereotyped, inevitably suggests more than he actually says, because one can trace the ganglionic centers of association. Our author has pointed out many of these, which it would be useless here to mention in detail. The interpretation of Plato's thought is, on the whole, sound, though there are points on which one may differ from the author. Occasionally a positive error occurs, as e. g., on p. 44, where we read of the tyrannical man that his "nature is so chaotic and diverse (ποικίλος) that he can not be said to possess a self (ἑαυτοῦ ὡν ἀπρόσωπον)" referring to *Rep.* 579 C. The real meaning appears if one contrasts *Phaedr.* 256 B ἐγκρατεῖς ἑαυτῶν. The tyrannical man is not master of himself. On several points it might have been judicious to refer to some fuller discussion, seeing that they are subject to controversy. Thus, for the "demotic" or "social" virtue (pp. 51 and 54) one might refer to Archer-Hind's *Phaedo*, Appendix I., and for the δεύτερος πλοῦς (p. 53), to Appendix II., *ibid.*

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The Doctrine of Primary and Secondary Sensory Elements. BORIS SIDIS. *Psychological Review*, January and March, 1908. Pp. 44-68, 106-121.

In continuation of earlier work on hallucinations, the author here develops a theory of perception, "based on a close analysis of the normal process of perception and substantiated by observations and experiments of abnormal mental life." When an object is perceived, some of its qualities are directly present to sense. Other qualities, which do not affect any sense organ at the moment, are, nevertheless, present in some form in the percept; according to the common doctrine, they are present in the form of images. Dr. Sidis, on the contrary, holds that the manner in which they are present in perception differs entirely from the way in which they are present in a memory image, such as we get when, without having the object present to any sense at the moment, we recall it and its qualities to mind. In the percept they have a sensuousness which they lack in the image. "We see, we perceive, the hard, heavy, smooth, resistant body of ice—all the elements have alike the intensity of sensation. The hardness, the smoothness, the bodily resistance are perceived by the visual sense and are visual, but as such they, of course, differ from the sensations experienced by their appropriate sense organs, as when, for instance, the same sensations are given by touch or by muscular and kinesthetic sensations. Those muscular and tacto-motor sensations appearing as visual are not memory images, but they are actual sensations, they are *secondary* sensations; they are secondary sensory elements, which give the fullness of content to the percept having visual sensory elements as its nucleus."

The author's meaning, which in the first part of his paper appears somewhat strained and obscure, becomes clearer when he passes to his pathological evidence, which refers first of all to the facts of synesthesia—sound-photisms, light-phonisms, and the rest. In these cases, a stimulus to one sense gives rise to what must be designated as, not images, but true sensations, belonging to other senses. In normal perception, the same sort of secondary sensations occur, the only difference being that they are closely fused with the primary sensation, whereas in synesthesia they are partially dissociated. In hallucinations, the dissociation is more complete. The author brings forward a number of cases in which hallucinations of one sense are traced to abnormal irritation of another sense; these give him the clue to his theory of hallucinations, which regards them, not as centrally originated, but as excited by the stimulation of some sense organ, the primary sensations due to such stimulation being then so far dissociated from the secondary sensations as to have no conscious connection with them, or even as to drop out of consciousness altogether. Were the primary and secondary sensory elements partially fused, the result would be synesthesia; were they completely fused, the result would be normal perception. What distinguishes hallucinations from normal percepts is dissociation. "Percepts and hallucinations are of the same grain. A percept is a hallucination with

the primary nuclear sensory elements *present*, a hallucination is a 'real' percept with the primary sensory elements *absent*."

The main point of the doctrine is thus seen to be that the genuine sensory process can be aroused either by stimulation of the appropriate sense organ, or, secondarily, by the stimulation of other sense organs, but never in any other way. It can not be *centrally* aroused. What can be centrally aroused is a memory image, and this differs absolutely from the sensory process. "The image or idea is that bloodless, shadowy, fluttering affair which can no more attain the life of a sensation than a written letter can attain the power of sound." "The image of a light does not shine, the idea of a voice does not sound, and the representation of a perfume does not smell. . . . The image, the representation, is essentially mediate, it is a mental substitute for the immediate experience of the sensation. The idea bears the same relation to the sensation as the photograph bears to the original, or rather as a symbol to the thing it represents. . . . There is not a particle of evidence to substantiate the view that ideas or images are copies of sensation in the sense of being weak sensations or 'centrally excited sensations.' There is nothing of the sensory in the idea." From these quotations it may reasonably be inferred that the author's imagery, in the Galtonian sense, is weak. But it is also clear that he is somewhat of an innovator in his definition of the term *image*. Following Galton, the image is usually defined in a descriptive way, as something like a sensation; and if an individual testifies that he is unable to call up images having this sensory quality, he is said not to have images. But the author defines "image" in dynamic or causal terms. That is an image which can be recalled by memory, which is centrally excited. The question then comes whether the image, so defined, possesses the quality of a sensation; and the author, on the basis of his own introspection, decides that it does not. The sensory tang can be aroused, he finds, by peripheral excitation, either of the sense organ appropriate to the particular sense quality aroused, or of other sense organs, but it can not be centrally aroused.

Allowance made for his use of the term *image*, the author's theory of perception seems to differ in no respect from the traditional doctrine; for when the latter speaks of a percept as a blend of sensation and images, it means by images just what the author means by secondary sensory elements. The novelty of the author's view lies in his conception of "images" or memory content, and in the sharp line which he draws between this and sensation. On this point, the reviewer's introspection is on the whole in agreement with that of the author, though he does not follow him into such artificial antitheses as the following: "Sensations have intensity, but no vividness; images or representations have vividness, but no intensity." But it must be remembered that many observers insist on the sensuous character of memory content; and no acceptable theory of memory content can be made which does not take account of these diverse introspective accounts.

In one respect, it is practically certain that the author's distinction

between percept and representation is too sharp. He would make them absolutely distinct, and would relate them to different cerebral processes and probably to the activity of separate organs in the brain. The process of representation is not in any respect a renewal of the process of perception. We do not recall past experiences of an object, but get, in memory, a new and fundamentally different kind of experience of it. But this makes it hard to see how perception of an object enables us later to recall it; if the organs concerned in the two processes are different, no "trace" or modification of the organ by the first impression would operate to make possible a representation. Memory can not be conceived as something entirely new, wholly distinct from perception; the two processes must at least overlap, and their organs be in part the same. Such a view as that recently propounded by Mr. Marshall, according to which memory recalls *part* of the perceptual experience, namely, the less sensory part—not all, but some of the cerebral organs active in perception being also active in memory—seems adequate to the introspective facts which Dr. Sidis reports, and at the same time logically consistent. And if we add to this the further supposition that the sensory part of the perceptual process *may* be recalled, with an intensity varying from zero in those whose sensory imagery is *nil* to a high degree in those who report their images to be almost equivalent to sensations, then it would seem that all the observations were sufficiently accounted for.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. June, 1908. *Passion du jeu et manie du jeu* (pp. 561-576): DR. P. SOLLIER ET G. DANVILLE. — Beside normal passion, play appears pathologically as the equivalent of certain hysterical manifestations, of constitutional morbidness, and of moral depression. *Les sens esthétiques (2^e et dernier article)* (pp. 577-598): CH. LAJO. — Forms and sounds are the only things for which we have both receptive and producing organs, so esthetic sensations, being both active and passive, can only be given by sight and hearing. *Responsabilité ou réactivité?* (pp. 599-621): DR. LAUPTS. — The principle of social reaction, analogous to that of organic reaction, should replace the metaphysical notion of free-will in the legal treatment of crime. *La curiosité scientifique* (pp. 622-638): JULES SAGERET. — All human actions arise from curiosity, interested or disinterested, and division as to scientific prob can only cease when curiosity concerning them shall cease. *Re critique: L'aphasie de Broca*: GOBLOT. *Analyses et comptes rendus*. Bazaillas, *Musique et inconscience*: LIONEL DAUBIAC. J. de Gaultier, *La dépendance de la morale et l'indépendance des mœurs*: FR. PAUL Lagorgette, *Le fondement du droit et de la morale*: G.-L. Mazarella, *Les types sociaux et le droit*: J. LAGORGETTE.] , La dans la famille: G.-L. DUPRAT. *Revue des périodiq*

- Dresser, Horatio W. *The Philosophy of the Spirit. A Study of the Spiritual Nature of Man and the Presence of God, with a Supplementary Essay on the Logic of Hegel.* New York & London: G. P. Putnam's Sons, The Knickerbocker Press. 1908. Pp. xiv + 545.
- Poulton, Edward Bagnall. *Essays on Evolution, 1889-1907.* Oxford: The Clarendon Press. 1908. Pp. xlviii + 479.
- Spir, A. *Denken und Wirklichkeit. Versuch einer Erneuerung der kritischen Philosophie.* Vierte Auflage, mit Titeilbild nebst einer Skizze über des Autors Leben und Lehre von Helene Claparède-Spir. Leipzig: Johann Ambrosius Barth. 1908. Pp. xxx + 547.

NOTES AND NEWS

WE take the following from a brief account of Lord Kelvin's philosophy contributed by Sir Oliver Lodge to *Nature*: "Whereas it had been hoped to explain force in terms of latent motion, Lord Kelvin in later years sought to expound motion in terms of force, giving up the kinetic unification of the material universe in favour of a conception more arbitrary and descriptive, and permitting himself to regard force as perhaps an equally fundamental, perhaps a more fundamental, conception than motion. It may be that philosophers will concede the (to me) somewhat improbable proposition that an explanation in terms of force and action-at-a-distance will be as satisfactory as an elucidation in terms of motion and a continuous medium. To Lord Kelvin it would appear that both solutions were equally satisfactory, and that it was only a question of which was the most tractable. In any case it is noteworthy that he took up so clear and definite a position; it is the key to much of his recent work, and to the difficulties which he felt in accepting some of the hypotheses which are a natural consequence of the electrical theory of matter and of some of the facts of radio-activity. It now seems not unnatural that he should have sought to express and explain these great results otherwise. His attitude is both coherent and reasonable; though I would urge that most theoretical advance and discovery (in the hands of Maxwell and others) has been along the continuous and medium line, which, if not the line of ultimate explanation, is at any rate that of achievement. At the same time, it must be admitted that, if a longitudinal impulse is transmitted by an incompressible medium at an infinite pace, the process becomes barely distinguishable from action at a distance, through a force varying according to a specified law. Or—putting what is virtually the same thought in another way—the influence of an electron, or matter-unit, whose field of force extends infinitely in all directions, need not be conceived as limited by some arbitrary boundary beyond which things can be said to be at a distance from it. . . . The conclusion of the discussion on the constitution of the atom may be summed up thus: The internal energy of Lord Kelvin's model atom is static or potential. The

internal energy of the hypothetical atom at which others are working is kinetic. The disintegration of radium in the former case is comparable to the explosion of an unstable chemical compound, like gun-cotton. In the latter case it must be represented by something more akin to the flying to pieces of a single rapidly spinning unit, such as a fly-wheel. And so for the present the matter stands."

THE degree of D. Sc. *honoris causa* was conferred on Professor James Ward, at the Encaenia, at Oxford, on June 24. In presenting him for the degree, Professor Love spoke as follows: Inter Psychologos nemo clarior est quam Jacobus Ward, qui Psychologiam, cuius scientiæ proprium sit singulorum sensus tractare, non ex alia scientia pendere sed sui iuris esse constanter asseverat: cuius in ore semper est vox illa "Ego sum. Nihil mihi hoc verius?" Qui vir ita priorum repertis usus est ut erroribus vitatis longius progrediretur: idem si quid boni usquam invenisset non aspernatus novam, quæ latissime pateret, rationem excogitavit et necessitudinem quandam inter mentem nostram et rerum naturam intercedere docuit. Psychologiam etiam cum aliis scientiæ generibus artissime coherere monstravit et omnibus qui cognoscendi ratio quæ sit investigant vel hominum moribus student utilissimam esse contendit. Neque ei satis erat huic scientiæ novum quasi fundamentum præbere, sed multorum diverso in genere philosophorum opiniones reprehendit: quæ omnia in libro paucos abhinc annos edito pervulgata cum iis qui rerum naturæ investigandæ operam dant tum iis qui philosophiæ potissimum incumbunt maxime profuerunt.

THE third international congress on the history of religions will be held at Oxford from September 15-18 next. Professor E. B. Taylor, F.R.S., is the honorary president; Sir A. C. Lyall, the president, and Professor Percy Gardner, the chairman of the local committee. The business of the congress will be conducted in nine sections, and there will be general meetings for papers and lectures of wide importance, as well as meetings of sections. In addition to the addresses by the president and by the presidents of sections, numerous important papers will be read. English, French, German, and Italian will be recognized as official languages. Offers of papers should be sent to the honorary secretaries, Dr. J. Estlin Carpenter, 109 Banbury Road, Oxford, and Dr. L. R. Farnell, 191 Woodstock Road, Oxford.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

SUBATTENTIVE CONSCIOUSNESS AND SUGGESTION

I

IN a late number of this JOURNAL¹ I recalled the fact, evident enough, but often overlooked, that the word consciousness is used with two quite different and distinct meanings. It is employed, first, to refer to psychic existence as such, and second, to refer to "awareness," which is usually, and properly, assumed to be a special type of psychic existence. And I suggested that the phrase nonattentive or subattentive consciousness be employed in place of the phrase "the subconscious." For it is clear that in speaking of the subconscious we do not refer to something beneath, or inferior to, psychic existence as such; but do refer to psychic existents of which we are not aware. As the part of consciousness of which we are aware is described as the field of attention, it seems proper to speak of the part of which we are not aware as the field of inattention; or in referring to it to use the phrases nonattentive or subattentive consciousness as I proposed.

That some effort to clarify the meanings we give to the word consciousness, and to kindred terms, is important at this time appears in the publication in a more recent number of this JOURNAL² of Professor Fitzpatrick's article entitled, "The Part Played by Consciousness in Mental Operations." This title apparently can have significance only provided the word consciousness refers to "awareness," and not to psychic existence as such. But what then is referred to by the phrase "mental operations"? They must, it would appear, be conceived to be psychic existents, and so far as they are apart from the field of "awareness" they must be part of the field of subattentive consciousness. Yet Professor Fitzpatrick argues in opposition to the assumption of the existence of subconsciousness.

It would appear from the last part of Professor Fitzpatrick's article that the theory of the existence of a subattentive consciousness ("subconsciousness") repels him because, being helpful in ex-

¹ Vol. V., No. 4.

² Vol. V., No. 16.

plaining the many facts he presents in terms of the theory of parallelism (or of "neururgic and noetic correspondence" in my terminology), it tends to push out of sight the question which appears to him to be of vital importance for psychology, viz., as to the existence of a causal relation between consciousness and "physiological functioning."

Why we should so commonly meet with such an attitude of mind among students of philosophy and psychology it is difficult to comprehend. The category of causality is one upon which we are wont to rest, altogether forgetful of its inherent mystery. Its value is due to the fact that the recognition of concrete causal relations enables us to predict with certainty events in the future from data found in the present. As the result of many experiences we then find ourselves gaining satisfaction from the mere statement of the existence of a causal relation even where little evidence is at hand to warrant such a statement: we rest content with the statement as though we had once for all solved all the mysteries involved in the relations within the sequences of events we have under consideration. Thus it is that we satisfy ourselves with the assertion that the mind acts causally upon the body, and conversely that the action of the body causes mental changes, although the greatest uncertainty prevails in prediction as to the bodily states that will follow certain mental conditions, and as to the mental states that will follow certain bodily conditions.

One who adopts the theory of a thoroughgoing neururgic and noetic correspondence does not deny that in a sense the causal relation may be discovered between mind and body, but he complains that those who think it of vital importance to psychology to maintain the existence of this causal relation seem content to treat the connection between mind and body as an utterly haphazard and lawless one. He finds also many problems which the assumption of such a causal relation fails to elucidate, and he, therefore, waives the questions involved and turns his attention to another hypothesis which appears to serve his purpose better, and which he may adopt without taking any position in favor of, or in opposition to, the conception of the existence of this mind-body causal relation.

Taking such a point of view, we find that a large part of the difficulties found in connection with the conception of the sub-attentive consciousness ("subconscious mind") disappear if we make two assumptions which we seem warranted in making. First, that the field of inattention is fundamentally of the same nature as the field of attention; just as under the generally accepted view the especially emphatic nerve activities, or neururgic emphases, with which the field of attention corresponds, are fundamentally of the

same nature as the mass of nerve activities (apart from the neururgic emphases), with which the subattentive consciousness corresponds. Second, that the field of inattention is as thoroughly systematized as the field of attention is; just as the neururgic mass is as thoroughly systematized as the neururgic emphases are.

If the field of attention displays what Stout calls "psychical dispositions," if in each moment it displays what I have called a given noetic pattern in correspondence with a given neururgic pattern; then if the field of inattention is of like nature with the field of attention, this field of inattention, too, must in each moment display an *unemphasized* noetic pattern, so unemphasized, indeed, that it is unable to gain recognition in the field of "awareness."

But the noetic patterns in attention as they appear in successive moments are in a continual state of flux and development. At times they seem to involve mere revivals and combinations of revivals; but at other times there appear important resultants of these combinations, which are more marked and emphatic than the revivals out of which they develop, and which appear to us to be new psychic forms. Examples we find in the conclusions reached by a given movement of thought.

If now we assume that the unemphasized patterns in the systematized field of inattention are subject to similar changes of form, then it is easy to see that at times within this field of inattention certain resultants of combinations of unemphasized revivals may appear, and as in the field of attention these resultants are wont to appear more emphatic than the revivals out of which they develop, the same must often be the case in the field of inattention, and thus we should expect to find occasionally the unemphasized noetic patterns of inattention developing resultants sufficiently emphatic to appear within the field of attention.

We have here what appears to be a satisfactory explanation of the familiar facts which Carpenter described as "unconscious cerebration," without recourse to the doubtful hypothesis which he upheld, viz., that certain complex brain processes may exist without any psychic correspondents, although the resultants of these processes are accompanied by consciousness.

II

We read and hear so much in our day about "the efficiency of suggestion upon the subconscious mind" that it seems worth while to consider whether some clarity may not be given to the conceptions involved if, making the verbal substitution we here suggest, we speak of "the efficiency of suggestion upon the subattentive con-

sciousness," and attempt to trace the implications of the view here presented in relation to this subject.

And, first, let us consider briefly the nature of suggestion itself, in connection with the view that the fields of attention and of inattention are fundamentally of the same nature. Let us remind ourselves that a very small proportion of our thoughts as given in clear attention are spontaneous and original, and that a very large proportion of them are due to suggestion, by the act of others whom we imitate, or by spoken or written word. If this is so, then, under our view, a large proportion of the unemphasized noetic pattern in the subattentive consciousness ("subconscious mind") must also be due to suggestion, which may have been recognized as such or may have passed unnoticed.

Occasionally, as we have seen, the development of these unemphasized noetic patterns may produce resultants which will emerge from the subattentive consciousness into the field of attention, and we are therefore led to expect definite results within the clear field of attention from suggestions made to a person who may not be aware of the nature of the suggestion as such, that is, from suggestions made to the man's subattentive consciousness ("subconscious mind"). When we state the matter thus the mystery in relation to suggestion as employed by the psychotherapist disappears, and with it the hold the charlatan who uses psychotherapeutic methods has upon the ignorant and superstitious.

We may note, also, that each of us is more likely to be moved by the clearly recognized suggestions of some persons than of others; and we should, therefore, expect to find that suggestions to the subattentive consciousness of a particular man might be followed when given by one person, while those given thus by other persons would not be followed. In like manner, we note that each of us is able to lead some persons by clearly recognized suggestion, and not able thus to lead others; and we see that the same must be true of our suggestions to the subattentive consciousness of these other people. The man whom we call obstinate if he does not succeed or if we do not like him, or of powerful will if he does succeed and we do like him, is one who suggests effectively to many, and who is not acted upon easily by the suggestions of others.

We thus find a simple explanation of the "control" by the hypnotist over his patient, and of similar "control" by special persons in trance-like conditions less radical in form than that of hypnosis.

What is known as auto-suggestion, which seems to many so mysteriously powerful, is nothing more nor less than volitional control. For it will be agreed that Dr. Worcester³ is warranted in de-

³"Religion and Medicine," p. 93.

fining auto-suggestion as a "self-imposed narrowing of the field of consciousness to one idea, by holding a given thought in the mental focus, to the exclusion of all other thoughts"; a definition which is strikingly like that given by Professor Royce⁴ of volitional control, which he describes as follows: "To will a given act is to think attentively of that act to the exclusion or neglect of the representation or imagining of any and all other acts." It is evident that we have here the basis of the resemblance in the psychotherapeutic methods adopted by the devotees of the older "will cures," and by the more modern Christian Scientists and Emmanuel Church leaders.

It is to be noted also that prayer is a form of suggestion. When a man prays for another in the presence of that other person he is clearly making suggestions which are likely to be effective because the one prayed for is usually in a receptive frame of mind. When a man prays for himself he is as clearly assuming the attitude of the man who makes use of auto-suggestion. It is evident that we have here the basis for the likeness between the bodily improvements following upon what is recognized as suggestion, and those following upon the "prayer of faith," *i. e.*, of suggestion or auto-suggestion to the man who wishes to be guided, and is thus receptive to suggestion.

III

Turning now to the consideration of certain current conceptions of the modern psychotherapists in relation to suggestion and the subattentive consciousness, we note that a large proportion of the phenomena they present for our consideration are to be looked for if it is true, as we have above agreed, that just as suggestion works upon the systematized attentive consciousness, so it works upon the systematized subattentive consciousness, occasionally as in cases of so-called "unconscious cerebration," the resultants of the suggestions to the subattentive consciousness being emphatic enough to appear in the field of attention.

It is to be remarked, also, that the influence of suggestion in attention is not limited to any special type of ideas; and if it is true that the relation of suggestion to the fields of attention and of inattention is of the same nature, then in like manner the influence of suggestion upon the subattentive consciousness can not be limited to any special type of ideas. This is important to note because we find a tendency among the religious psychotherapists to claim that the subconscious mind is a "normal part of our spiritual nature," to assume that it is "purer, more sensitive to good and evil, than our conscious mind."⁵ This view has doubtless become current

⁴ "Outlines of Psychology," p. 369.

⁵ Dr. Worcester, *op. cit.*, p. 42.

largely because it seems to be subscribed to by such authorities as Starbuck and James, the latter of whom in his "Varieties of Religious Experience"² tells us: "Starbuck seems to put his finger on the root of the matter when he says that to exercise the personal will is still to live in the region where the imperfect self is the most emphasized. Where, on the contrary, the subconscious forces take the lead, it is more probably the 'better self' *in posse* which directs the operation." This seems to me to be an unwarranted assumption.

On the contrary, a strong argument can be made in favor of the view that the subattentive consciousness differs in character from the attentive consciousness mainly in that it is more normal, more conservative, than the latter; for in the very efforts to meet new situations, which necessarily involve new attitudes, consciousness must tend to emerge from the subattentive and attain to the attentive form. This means that the influences arising from within the field of inattention more closely reflect the real hidden nature of the individual than those which appear in the field of attention. But this gives no ground for the contention that the subattentive is in all cases the "better self." Whether it is better than the attentive consciousness depends altogether upon the direction of activity which the latter involves. At times the subattentive consciousness may suggest conservative results which are nobler than those to which appeal is made in the field of attention. But occasionally, on the other hand, these conservative results may be less noble than those which are emphasized in the field of attention.

It is difficult to see how such a claim as the one here criticized can have ever been seriously maintained when one considers how ignoble is the soul that yields to temptation; and also perceives that the tempter works by suggestion which is almost entirely effective upon the subattentive consciousness. His suggestions are usually repudiated by the attentive consciousness of the tempted man, but they influence the latter's subattentive consciousness and presently lead him to sin without resistance, when opportunity offers. Self-sophistication similarly is in a large proportion of cases due to auto-suggestion in the form of wishes for what a man knows he ought not to do; *i. e.*, for what his attentive consciousness will not condone, but which affect his subattentive consciousness so radically that presently he sins without compunction.

It is also claimed³ that the "subconscious mind has more direct control of our physical processes than the conscious." But evidently if the subconscious mind is nothing more nor less than subattentive

² P. 209.

³ Dr. Worcester, *op. cit.*, p. 42.

consciousness there is no ground for such a position. Apart from the fact that evidence in favor of such view is entirely lacking it is apparent that this control, whatever the phrase may mean, must be of the same nature whether the noetic forms are sufficiently emphatic to appear in the field of attention, or are so unemphatic that they do not emerge from the field of inattention, or subattentive consciousness.

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REVIEWS AND ABSTRACTS OF LITERATURE

Darwinismus und Lamarckismus. Entwurf einer psychophysischen Teleologie. AUGUST PAULY. München. 1905. Pp. 335.

An Investigation of Evolution in Chrysomelid Beetles of the Genus Leptinotarsa. W. L. TOWER. Carnegie Institution, 1906. Pp. 320, plates 30.

Darwinism To-day. A discussion of present-day scientific criticism of the Darwinian selection theories, together with a brief account of the principal other proposed auxiliary and alternative theories of species forming. VERNON L. KELLOGG. New York: Henry Holt & Co. 1907. Pp. 403.

A considerable part of the thinking world, outside of the small group of trained biologists, doubtless regards the evolution theory, in the precise form in which it was left us by Darwin, as one of the great permanent acquisitions to our knowledge. But such a view ignores the fact that the theory is itself a product of evolution and that it is still evolving with astonishing rapidity. The "Origin of Species," far from being a final statement of the case, owes its chief importance to the stimulus which it gave to further investigation and criticism. Among professional biologists the view has steadily grown that the whole subject is deeper and broader than even Darwin realized, and immeasurably more complex than the cut-and-dried, second-hand expositions of various popular writers would lead one to suppose. The one settled truth seems to be that organic evolution is a fact; questions as to the method, rate, and direction of evolution are, on the other hand, still subjects for speculation and controversy—yes, and for experiment. From time to time certain theological opponents of the evolution doctrine attempt to make capital of these dissensions among the evolutionists themselves, and proclaim that the theory itself is losing ground. And, indeed, so completely synonymous in the popular mind are "Darwinism" and "evolution" that the increasing criticism of Darwin's special hypotheses seems to lend color to the view that evolutionism is tottering to its fall. It is, therefore, the duty of all writers upon this subject, when addressing general audiences, to make clear their attitude concerning the theory of descent as a whole,

before attacking any of these special hypotheses. Nor should the fact be obscured by those who criticize "Darwinism" that upon the great fundamental issue Darwin was wholly in the right, and that it was largely through his efforts that the world has become converted to this newer and grander view-point.

The voluminous present-day literature of evolution consists in part of theoretical discussions, in part of concrete presentations of fact. Of course the two can never be wholly separated, and, indeed, both are equally necessary to progress. It is a shallow point of view which condemns speculation merely because the facts are not yet all in. Nevertheless, the growing tendency to appeal to experiment for the decision of the mooted problems of evolution is a very hopeful sign, and has already led to some real triumphs. Three recent works have been chosen for review, namely, "Darwinismus und Lamarckismus," by August Pauly, "An Investigation of Evolution in Chrysomelid Beetles of the Genus *Leptinotarsa*," by W. L. Tower, and "Darwinism To-day," by Vernon L. Kellogg. The first represents in a high degree the speculative type of discussion; the second is a protracted and obstinate appeal to observation and experiment; while the third is an encyclopedic treatise which deals judiciously with the present status of Darwin's theories and of the various rival hypotheses, and summarizes in brief scope a vast array of literature.

The work of Pauly is, as the subtitle declares, the "outline of a psychophysical teleology." His main thesis is contained in the declaration (p. 245) that "we ourselves are the creators of our adaptations" (*Zweckmässigkeiten*). It is a panpsychic Lamarckism, which attempts to extend Lamarck's principle farther than ever its founder dared to venture. Despite Pauly's repeated disclaimers, we are afraid that the average biologist will insist upon branding his hypotheses as "mystical." And, indeed, if we judged the work solely by the weight of the scientific evidence which is offered us, we should dismiss it as hardly worthy of mention. But suggestiveness has its place even in the literature of biology, and such a general interpretation of organic nature has genuine interest and value.

Like most of the critics of "Darwinism," the author is on his surest footing when engaged in portraying the weakness of the natural selection theory. There is little that is new in his criticisms, to be sure, and only certain classes of the well-known objections are discussed. The intense "struggle for existence" he regards as largely mythical. The competition is mainly one between eggs or seeds, for but few of the competitors reach maturity. There is, therefore, no great superabundance of adult individuals. But great numbers are the essential condition for the action of selection, unless infinite time be given. After speaking of the low rate of fecundity of the whale or the elephant, he declares: "The whale, like the elephant, has, as its instrument for the production of adaptations, only whales at its disposal, only elephants in excess . . ." (p. 32), and the force of the objection is manifest. The usual protest is entered against the "accidental" character of the variations upon which selection is supposed to act—accidental, that is, as regards their prospective use.

Lamarckism alone can tell us why "the time of origin of a functional adaptation coincides with the exercise of the function" (p. 34). And the Lamarckian view certainly does offer us by far the simplest explanation of this fact. Considering the nature of the argument which is pretty generally held to undermine the whole Lamarckian edifice, it is interesting to find Pauly urging the insufficiency of *heredity* to meet the needs of natural selection (pp. 35, 36). Indeed, throughout the entire volume there is no discussion of the evidence for and against the inheritance of acquired characters. Nevertheless, we are told (p. 75) that "it belongs with the other monstrosities in the thought of the Darwinian epoch that one biologist (August Weismann, in Freiburg) could cause the convictions of his time to waver on this point." The real anomaly, in the mind of the reviewer, is the fact that biologists, scarcely without exception, supinely shirk the solution of this most vital problem.

The impossibility of accounting for the myriad of coadapted and correlated structures in an animal body by the accumulation of independent variations is presented forcefully. The stereotyped reply of the orthodox selectionist, as each part of the mechanism in turn is subjected to scrutiny, is held up to ridicule in an imagined dialogue. "Whence this transparency of the cornea? Whoever thus varied, survived.—Whence its spherical curvature? Whoever thus varied, survived.—Whence the transparency of the lens? Whoever thus varied, survived.—Whence its curvature? Whoever thus varied, survived.—Whence the transparency of the vitreous body? Whence the pigmentation in the eye? Whence the adjustable curtain? Whence the sensory nerve, the rods and cones, the muscles of accommodation, the muscles of the eye-ball, the tear-glands, lids and lashes? Whoever thus varied, survived.—Whence this possibility of closing the lids, whence the coordination of the eyes? Whoever thus varied, survived.—Whence the pumping action of the heart, these valves and tubes? Whoever thus varied, survived. Without end is put forth the same answer" (pp. 37, 38).

Pauly appears to be a man of one idea, for, unlike many opponents of the natural selection theory, he seems to deny its efficacy altogether. In fact, his denial at times has a petulant sound, as when he refers to the "Darwinian pseudo-explanation," "impotent principle," "empty conception," "Darwin's monstrous attempt at an explanation," etc.

But Darwinism, we are told, is only one symptom of the fallacious trend of modern scientific thought. The author strikes at the whole mechanical conception of organic nature, and substitutes what he terms a "psychophysical" one. The responses of tissues to functional changes are not mechanical, but *adaptive*. "Not even in a tissue of passive mechanical function, such as we find in bone, can a blind summation of work-stimuli produce anything adaptive according to purely mechanical principles" (p. 135). Physical forms of energy can not be the true causes of adaptive organic processes, because they can not mediate between the want and the future reaction which this gives rise to. "The organic being shows itself to us not as their product, but as a power utilizing

them " (p. 173). "Thus with the higher plants gravity does not determine the growth of the stem and the root, but the plant directs its growth, that is, its cell-division, following its needs, according to gravity" (p. 177). Teleology is the fundamental explanatory principle of the organic world. Such language is familiar enough to biologists in the writings of the modern school of vitalists, and it is with the "neo-vitalists" that Pauly must be classed. But we must acquit him at once of much of the turbidity of thought and expression which characterizes such writers as Driesch. For "entelechy" and "psychoid" he endeavors to substitute definite concrete acts of perception, judgment, and will. "That the root turns itself from the light, if it be brought artificially within its influence, shows that it perceives its action and has experience of the fact that if it directs its course toward the light, it will not find what it needs" (p. 178). And again: "Before the cornea acquired its glassy transparency there must have first been the experience that through some action unknown to us, by means of which the opaque particles were removed from it, the need of seeing was more completely satisfied; and before its stronger spherical curvature was acquired the experience must have preceded that definite alterations in its tension or in its growth, through which its curvature was increased, furthered sight" (p. 129). Perhaps the average reader will think that such an explanation demands an even greater tax upon the imagination than the "Wer so variierte, blieb übrig" of the dialogue quoted above. But what will the "average reader" say to this?—"Never could it have come to pass with the vertebrates that out of a heart in which both sorts of blood, the arterial and the venous, still mixed, there arose one in which each sort of blood followed its own path, unless the cells of the inner surface of the heart and vessels, which came into contact with the blood, could distinguish between venous and arterial blood, could communicate this difference by conduction to other cells, and stimulate them to a constructive activity such that the separation of the two sorts of blood would be promoted" (p. 206). The response of any part to a given environmental stimulus is not determined by its own needs alone, however, but by those of adjacent parts and of the entire organism. Referring again to the lining cells of the vertebrate heart, he says: "The turning of their attention to the difference between the two sorts of blood could not, however, have arisen in the endothelial cells themselves, but sprang from the need of the whole for more oxygen and for the liberation of carbon dioxide, if the organism were in any way stimulated to a higher degree of activity" (p. 206). Far fetched as this special instance may seem, Pauly is certainly right in insisting upon the physiological unity of the animal body and the profound correlation of its functions. The condition of each cell affects that of every other, including the reproductive cells. In this direction lies the possibility of explaining the inheritance of somatic modifications, if this should ever be proven. And the assumption of such inheritance is, of course, fundamental with Pauly, though he does not concern himself with proving it. How is this physiological unity (or, as he would call it, a psychophysical

one) maintained? Partly, of course, through the nervous system. But plants have no nervous system, and much may happen even in the animal body without its aid. For plants (and, by inference, for animals) Pauly assumes the existence of a "psychophysical irradiation-current" (*psychophysische Irradiationsstrom*) which passes from cell to cell with extreme rapidity. The propagation of this "must be a very fine physical process, which must also be much more rapidly propagated than the gross physical stimuli whose spread from cell to cell has been followed with the microscope" (p. 186). One is reminded of the "animal spirits" and those various other quaint conceptions which amuse us in the science of bygone days.

We are given a chapter on "Plant Psychology," another on the "Teleological Reactivity of the Feathers of Birds." The former contains much that is interesting; and the author's extension of elementary psychic processes to the plant kingdom is, of course, a familiar philosophic standpoint with much to recommend it. Indeed, it may be helpful even to the biologist to conceive of the reactions of non-nervous organisms as manifestations of perception and desire,—helpful in emphasizing the essential unity of all behavior. But that the psychic factor must be invoked as a cause of physical events—called in when mechanical factors seem to fail us—this is not consistent panpsychism, and certainly is not legitimate biology. We are told that the psychological factor is the only one which can explain teleological (meaning *adaptive*) happenings. Why adaptive ones in particular? According to Pauly's own statements, there is nothing prophetic about organic responses. By experience it is learned that a particular response, of growth or otherwise, satisfies a given need. Reactions are not in the first instance adaptive, but random, therefore; until, secondarily, an association is established between the perception of the need and the perception of the means of relieving the need. In his chapter entitled "Der Begriff des Mittels" (i. e., the instrument or means by which each particular need of the organism is met), we are told that "one of the foremost properties of the 'Mittel,' a property which must determine the character of the natural teleology through all stages of the world's evolution, is this, that it is not determined in advance for its purpose, but is only brought into association with it through an accidental juxtaposition; that is, its useful characteristics do not aim towards their future application, but experience the same as an occurrence foreign to themselves" (p. 108). This is essentially the law of "trial and error" upon which Jennings and others have laid so much stress; though no mention is made of these writers by Pauly. If all adaptation is thus reducible to the survival of favorable chance responses, the ogre Selection, with its terrible stigma of *Zufälligkeit*, after having been thrown out of the front door, has stealthily gained entrance at the rear. And if natural selection is a non-teleological explanation of the origin of adaptations, is not also this functional selection, the "method of trial and error"? The truth is that any explanation, so far as it is scientific, must be non-teleological. Causation and teleology can not be thus spliced together in

a single homogeneous series. But to banish teleology altogether would, indeed, be to banish all significance from life. "Were there not in our world," says Pauly, "a unique phenomenon purposefulness (*das Zweckmässige*)—the most wonderful and admirable of all phenomena . . . then could the investigation of psychological phenomena be spared from science; but in such a world we, ourselves, would not exist" (p. 201). We must agree in insisting upon the preeminence of mind in any general conception of nature, and in rejecting the shallow materialism which regards it as an "epiphenomenon" which occasionally intrudes itself into the world of real facts. But the question here to be decided is this: is it either legitimate or in any way helpful to drag in mind as an accessory causal explanation to help us out of certain difficult places in the series of physical events? Indeed, a thoroughgoing panpsychism is at one with materialism in refusing to do this. And Pauly is in other respects a panpsychist. "The purposeful acts of the body cells are peripheral acts of thought" (p. 216). But "psychic faculties did not first commence with protoplasm": they exist in all matter (p. 166). And again: "Life is a world property" (p. 291). Indeed, the "dual aspect" theory of mental and physical is in some passages maintained quite clearly (pp. 164, 267). Why, then, we must ask, does he characterize certain forms of energy as peculiarly "psychic energy"?

Another inconsistency is the denial of *consciousness* to many of those very "teleological" processes, for the psychological character of which he clamors so loudly: ". . . the share of consciousness in the teleological act may be quite different in different cases. The cause as well as the effect of the adaptive response can lie without it altogether . . ." (p. 212). For judgment (*Urteil*) is not always conscious (p. 204). We thus face the inconceivable and self-contradictory hypothesis of unconscious perceptions, decisions, etc. And yet the author tells us that his theory of the psychical causation of physical events "is no unwarrantable digression into metaphysics, but a quite proper, purely empirical, causal bond, based upon experience which may be tested at any moment" (p. 160). His principle is *überall irdisch*; one which "can be investigated experimentally as well as theoretically."

The upshot of the whole matter is that panpsychism must be thoroughgoing or it must be silent altogether, and in any case that it is utterly irrelevant in biological theory.

Some of the concrete applications of Pauly's principle have been given above. Others may be mentioned briefly. "How far this delicacy of perception extends appears most clearly perhaps in the poison fangs of the snakes, which, in order to lead the poison into the wound, must form a groove on their surface, whose margins finally fuse completely . . ." (p. 222). Reflection leads to the conclusion, he says, that there is no difference in kind between the actively working organs and those of seemingly passive function (p. 223). "For many cases there exists a certain probability that the idea of the space in which an animal has to move influences its development in size" (p. 242). Adaptive coloration is

determined by the perception of the environment (p. 242); and the ornamental colors of a bird are an expression of its esthetic feelings. Speaking of the plumage of a peacock, he affirms: "The cause must have had eyes" (p. 271). This is just what Darwin said; but his sexual selection theory has always been open to the reproach of assuming too high a degree of mentality on the part of the animals in question. How it is possible for this esthetic sense to react upon the feathers and to influence their further development, is stated as follows (p. 284): "In order that the feather may be able to react functionally, the inner reality (*das Innere*) of each of its smallest parts must stand *en rapport* with the feelings and ideas of the brain, and therewith an understanding is possible between the needing and the need-fulfilling parts; a psychic current must circulate between both places, as is assumed for all teleological acts."

But why multiply instances? It is to be feared that already the metaphysical reader has begun to rub his eyes and to wonder whether this, after all, is physical science which is speaking—that same physical science which has been so wont to reproach him with harebrained speculations!

One of Pauly's subsidiary assumptions, and one, indeed, which is frequently made by evolutionary writers, is the notion that any step forward in the evolution of an organism must be determined by some change in external conditions. To the reviewer this assumption appears to rest upon an insufficient analysis of what is meant by "conditions." In reality a new set of conditions confronts the organism with each new modification of structure or function which it undergoes, even though the physical factors of the environment remain unchanged. Evolution in an absolutely fixed environment is thus at least conceivable.

Pauly, so far as we can judge by the present volume, exhibits little familiarity with recent developments in biology; and the extensive and extremely relevant modern literature of heredity and evolution is practically ignored by him. And we can not refrain from an allusion to his style, which is typically and painfully Teutonic, according to our American standards. I need only allude to one sentence of 16 lines and 156 words (p. 128), which is the author's worst offense of this class, so far as the reviewer has had the patience to count. However, we must close with the frank admission that the work is filled with ingenious speculation, and with really sound destructive criticism.

Passing to the work of Tower, we once more feel the solid ground of reality under our feet. This investigator has devoted over ten years of his life to studying variation, inheritance, and, by inference, evolution, in the genus *Leptinotarsa*, a group of small plant-eating beetles which includes the well-known "potato-bug." Such a study may seem altogether too special for consideration in a journal devoted to the broader problems of science and philosophy; yet few biologists would probably deny that Tower's work is one of the most substantial American contributions to the science of evolution. For patience and thoroughness it comes near

to being a model for all future work in this field. Geographical distribution, variation (statistically considered), ecology, embryology, and behavior are all called upon for their evidence. But the portion of the work which has probably created the greatest impression is that devoted to experiment. Tower has produced artificial modifications in the color patterns of his beetles and shown that under certain conditions these may be transmissible and become fixed in future generations. As an example of the magnificent scale upon which these operations were conducted, we may mention that over 200,000 beetles were examined in his search for mutations in nature, while more than 40,000 larvæ were subjected to artificial conditions in one series of experiments alone!

From his study of geographical distribution, Tower concludes that "we have strong evidence for the orthogenetic evolution of species as the result of response to changes of environment," and that we can infer with considerable certainty what the exact course of evolution has been, with respect to the various species here concerned. But we can come to no final conclusion as to its *modus operandi*. "Viewing the data and evidence from a strictly impartial standpoint, as one having no more interest in one hypothesis than in any other, as far as I can discern there is no certain basis for asserting what method or methods of evolution have been followed in this genus of beetles. . . . We can interpret the conditions found by any of the current hypotheses . . ." (pp. 118, 119).

Tower has analyzed at great length the variability in color and in markings within the limits of certain species. He concludes that "*species differentiation, as far as it is possible to determine, has been definite and not promiscuous, and that all variations are definite and not promiscuous, and also that both species differentiation and all variations are in the same directions and are in a most remarkable manner correlated with natural features of the general habitat*" (p. 119). But these geographical color variations (ranging from albinic to melanic) occurring within the limits of a species are, in the jargon of the biologist, "somatic" or "ontogenetic," *i. e.*, they are brought about independently in each individual by the influences surrounding it, and can not be transmitted to descendants. For example, the offspring of beetles from various parts of the United States and Canada, when reared in Chicago, assume at once the Chicago type of coloration. "As far as the evidence goes, and I believe that in this case it is remarkably complete, since so much is known of the history of the species, it seems certain that this form has not been altered by its existence in any one of a dozen different habitats, and that it has retained the same constitutional structure and character" (p. 111).

Tower has a good deal to say respecting what he terms "place variation." By this is meant, not local or geographical variation, as might have been inferred from the name employed, but the oscillations occurring from year to year and from generation to generation in the mean characters of the population of any given region. In his early writings, the term "secular variation" was employed for this phenomenon, and we

think it should have been retained as being appropriate and, indeed, almost self-explanatory. The term "place variation" was suggested to him by Davenport's expression "place mode," and may have some justification; although, if taken in an every-day literal sense, it is positively misleading. Since the phenomenon in question is likely to become prominent in future discussions of variation among animals and plants, it is important that a fitting name should be chosen. Scientific literature is already sufficiently encumbered with technical terms which belie their literal meaning. Owing to secular variation "one may be easily led into serious errors by the gathering of material here and there, and at one time only" (p. 102). Statistical studies have doubtless been often vitiated by this oversight. A species manifests variability of this sort because of "fluctuations from time to time of the individual factors in its environmental complex" (p. 102). It is, therefore, purely "somatogenic" and, by inference, non-hereditary. "It appears that geographical and place variation are closely related; that place variation is in reality the cause of geographical variation" (p. 112).

Great differences in the mean coloration of these beetles were produced artificially by subjecting them, shortly before pupation, to differences in the temperature or degree of humidity. In general, it may be said that an *increase* in pigmentation was produced either by a moderate increase or a moderate decrease of either temperature or humidity; while a *decrease* of pigmentation resulted from extreme conditions in either factor. Thus "neither temperature nor humidity seems to have any specific influence upon the coloration of the beetle; but each acts as a stimulus toward the production of an increase in activity under slight deviations and toward a decrease under larger deviations" (p. 194). Moreover, the effect is not greater if the artificial influences are brought to bear throughout the entire life of the larvæ; for their action is restricted to the period of color formation itself. What is more important, Tower finds the modifications which he has produced in this way to be *absolutely non-inheritable*. In this respect, they agree with the geographical or climatic modifications that were found in nature, with which, moreover, they run closely parallel. In general Tower declares himself strongly against the "inheritance of acquired characters." "Among the thousands of somatic variations which I have produced in my experiments on color modifications, not one has ever given the least indication of permanency in succeeding generations or in crossing" (p. 212).

In another extensive series of experiments, Tower sought to determine to what degree individual color variations of the "continuous" or "fluctuating" type were transmissible. In most cases the results were quite negative, but in a certain proportion of cases (about 4 per cent.) individuals were found possessing deviations which proved to be hereditary. There was thus a difference, not at first obvious, between one class of variations and the other. According to the prevailing view, one class would represent "somatogenic" modifications, the others being more deep seated, that is, being germinal in origin. Working with the latter type of

individuals, Tower found, with de Vries, that he could, by rigid selection, improve the strain up to a certain point, *i. e.*, within the limits of normal variability, but that beyond these limits he could not pass. The inference which the reader is allowed to draw, and to believe that Tower himself draws, is that fluctuating variations afford wholly inadequate material for permanent or considerable modification through selection. In plain enough terms he assures us that "artificial selection . . . created a race of low variability about the standard chosen, which it maintained as long as selection was practised; but it did not carry the race beyond the normal range of variation of the species" (p. 265). And again " . . . my cultures of *decemlineata* show in a clear and unmistakable manner the inadequacy of selection to create new elemental species and the fact that such do arise by sudden transformation. By selection we can create races, but we must maintain them by the same process, else they revert to the mediocre of the parent species" (p. 282). And on the same page he had already written: "The experiments with *pallida* are strong evidence in favor of the origin of species by rapid change, better, perhaps, than that afforded by de Vries's plants." It is true that a few pages later he qualifies these conclusions (or, rather, contradicts them) with the declaration that this failure to effect any considerable modification of a race by selection "may be attributed either to the inefficiency of selection to overstep the normal limits of variation, or, with more probability, to imperfect methods, and to the brevity of the experimentation" (p. 285), and with his expressed belief that these two types of variability ("fluctuating" and "discontinuous" or "mutational") are "the extremes of one and the same phenomenon" (p. 283). Nevertheless, these admissions lurk in the background at this stage of the volume, and the bulk of the argument is quite in harmony with the passages previously quoted. Whatever was Tower's intention in writing thus, the average reader may be pardoned for concluding at this point in the narrative that the author is a staunch mutationist of the de Vriesian type. And the conviction gains in strength as one proceeds with his discussion of mutations, both of natural and artificial origin. These suddenly appearing, extreme variations "breed true" from the outset and give Mendelian ratios when hybridized with the parent stock or with other mutants. They are thus the materials out of which permanent species could be created. And, indeed, Tower reared an extensive colony of one of these mutant varieties for six generations, and found that it rapidly crowded out the parent species in the particular locality where it was bred.

On page 93 we learn that "*large or extreme variations are determinate and always occur in directions corresponding to the maximum lines of fluctuating variations*"; and further that "in place variation, whenever there occurs an extreme oscillation of the population there is an accompanying production of an unusually large percentage of extreme variations or mutants" (p. 105).

But it is the experimental production of these mutants which forms,

perhaps, the most striking feature of Tower's work. Considerable changes in temperature and humidity were applied to the beetles in a series of experiments, similar to those already discussed, but with one important difference. Here the artificial conditions were applied, not during pupation, but at the period immediately preceding the ripening of the germ-cells, that is, during the imaginal stage of the insect, at a time when the color patterns had been definitively laid down. It is during this period of maturation, Tower believes, that the germ-cells are most sensitive. Such experiments are in a sense crucial "because whatever stimulus is brought to bear upon the animals can not further modify the parents, since they have attained their final state, and can, therefore, not develop further, even if they could transmit any acquired modifications" (p. 287). The cases of transmission discussed below are, therefore, to be sharply distinguished (or at least so Tower believes, and with him most other biologists) from any actual "inheritance of acquired characters," such as forms the chief article of faith with the Lamarckians.

In reality the germ-cells were somehow affected by the treatment accorded them, since, in many cases at least, a large proportion of "mutants" resulted—as many as 87 per cent. of the entire number of survivors, in one instance. The total number of such extreme variations found in nature was only 118 individuals out of more than 200,000 examined. These mutants were all assignable to the same varieties as those found in nature, and, like the latter, bred true with one another, and "Mendelized" when cross-bred. Just as in the previous set of experiments with changed temperature and humidity, neither of these conditions acted in any specific manner, "but solely as a stimulus, which, when brought to bear upon the germ-plasm, produced a response or change which took the form of permanent variations in some one or more characters" (p. 286).

One is not quite able to understand why the pronounced effects of climatic conditions already discussed under the head of geographical variation should be so utterly transitory and impermanent as Tower believes; for these conditions act during the whole life, including this supposed period of high germinal impressibility. But the author seems to liken this grand-scale test which nature offers us to his first experiments in which "somatic" changes alone were produced, rather than to his later series in which the "germ-plasm" was modified.

In his concluding chapter, Tower expresses opinions for which the reader is hardly prepared, considering the many previous statements which seem to imply an exactly opposite point of view. "*Variation and natural selection* in their various aspects furnish the entire solution to the problem of the *method of evolution* and of *adaptation*" (p. 298). After the consideration of an elaborate curve, constructed "to show the distribution of the inheritable variations about the mean of *L. decemlineata*," he tells us (not, indeed, for the first time): "I maintain, therefore, that 'mutation' is not a special kind of variability, different from that of 'ordinary fluctuating variation,' but is a part of the normal vari-

ability, and the direct response of the germ-plasm to stimuli" (p. 309). But some readers may be staggered by the statement upon the last page of the book: "*I have failed utterly to discover in these beetles evidence that mutants have taken any great part in evolution, all evidence showing them to be most rigorously exterminated by natural selection. . . . I am therefore of the opinion that the evolution of the genus *Leptinotarsa*, and of animals in general, has been continuous and direct, developing new species in migrating races by direct response to the conditions of existence.*" One might almost be led to believe that the author's own views had changed during the progress of the manuscript, and that he had not revised the earlier pages.

Another seeming contradiction, relating to a point of less importance, is contained in Tower's discussion of assortive mating. On page 238 reference is made to "the habit that extreme individuals have of showing a strong tendency in mating to select partners of a more mediocre condition than themselves." And again: "It is evident from the table that the extremes only very rarely mate, and that when they do it is most frequently with mediocre individuals, as might be expected" (p. 240). Unless the table is cryptic, it certainly shows nothing of the sort. Ninety per cent. of the "class 1" males¹ mated with "class 1" females, 70 per cent. of the "class 2" males with "class 2" females, 88 per cent. of the "class 9" males with "class 9" females, and 90 per cent. of the "class 10" males with "class 10" females. It is in the highest degree improbable that the author's own views are in such a hopeless state of contradiction as is here implied. But he has not made it clear to the reader (more specifically *this* reader) which of the statements he is ready to stand by.

But such defects as have been pointed out are not fundamental. After contemplating the work as a whole, one is forced to attribute these apparent discrepancies to carelessness or to an insufficient regard for the reader's point of view. A more serious criticism would bear upon the author's conception of natural selection, even in its definitive form. How this principle can be regarded as merely "*the conservator of the racial mean and mode, the destroyer of all variation diverging much from the orthogenetic trend of evolution*" (p. 314), and at the same time as the "most important factor in evolution," which he also believes to be true, is difficult to understand. For he elsewhere makes it clear (p. 256) that the importance of natural selection as a conservator of species is to him "due not to the tendency usually attributed to it to preserve as many of the useful variations as possible, but to the fact that it holds the species, race, or variety to the modal standard." Such a conception of natural selection, if the reviewer properly interprets the passages cited, would seem to make it a wholly conservative rather than a progressive factor, a check upon evolution rather than a cause of it. The "survival of the fittest" would merely mean the survival of the mediocre. But Tower, as we have seen, is not always fortunate in making clear his own standpoint. His last word in regard to mutations is that he regards them "as pro-

¹Classes 1 and 10 form the extremes of the series.

phetic variations indicating what may perhaps be the next species in the evolution of the race" (p. 314).

Kellogg's "Darwinism To-day" is before all else characterized by its usefulness. It gives within the brief scope of its four hundred pages the gist of most of the post-Darwinian evolutionary literature worth mentioning. And, despite certain minor abominations of style, it is an extremely readable book and abounds in pithy sayings and quotable passages. One commendable trait displayed by the author is his lack of personal animosity and the general spirit of conciliation shown throughout. The tone is judicial, and the work as a whole impresses one by the fairness accorded to all sides of a question. One of the features of the book is the proportion of space devoted to appendices, which, in the aggregate, occupy a third of the entire volume. These contain much illustrative material too special for the general reader, and extensive quotations from original sources. We have, for example, a list of books and papers dealing with variation, a complete Weismann bibliography, an admirable condensed account of the various theories of protoplasmic structure in relation to heredity, and important extracts (sometimes pages in length) from the writings of Cope, Galton, Haacke, Kellogg, le Dantec, C. L. and T. H. Morgan, Nägeli, Plate, Romanes, de Vries, Welden, Wolff, and others. In fact, the book is a sort of brief encyclopedia of recent thought upon evolution.

Unfortunately, the style of the work is seriously marred by the cumbersome nature of many of the sentences. The writer tells us (p. 30) how thoroughly he has delved in the German evolutionary literature of the day. And of this his own style bears abundant witness. The pages abound in lengthy and involved sentences, and parenthetical clauses, so much so as to threaten with aphasia the unfortunate one who may venture to read them aloud. (To this the reviewer can testify!) Illustrations of this could be chosen from almost any chapter, but I will cite a single instance only. At the bottom of page 192 we read: "Lamarckism says that the first fishes to go into the dark cave suffered a partial individual degeneration of their eyes through disuse and that this eye degeneration was inherited by their young, whose eyes, already bad, suffered further degeneration in their lifetime through disuse, and that after comparatively few generations this cumulative actual morphologic degeneration through disuse—and we know that unused active organs, as muscles, stimulus-perceiving parts, etc., do actually degenerate in an individual's lifetime through disuse—would reduce the eyes to a very degenerate condition." But the "limit" is much more than reached on page 328, where we have a paragraph of twenty lines, constituted by a single sentence, composed of 176 words and containing two parentheses. The best poor Pauly could do was sixteen lines and 156 words! And while we are mentioning these petty blemishes, we must point to frequent dissonances in the word combinations employed; such as: "curiously nearly completely subjective"; "more or less nearly entirely"; "influence of ex-

trinsic influences," followed by a third "influence" in the same sentence; "readily directly"; "practically generally"; etc. Reference is made on page 14 to the "sea anemone *Podocoryne*" (this being in reality a hydrozoan); and there are one or two other statements as to fact which are at least questionable. It is unlikely, too, that any biologist ever was guilty of so gross a perversion of the protective-coloration hypothesis as is imputed on page 37: "Polar bears are probably descended from brown; and their white fur coat is probably an advantageous adaptation in their life in the Arctic. But did the fortuitous appearance in his coat of a spot of white hairs as large as a dollar or a pancake give some ancient brown bear such an advantage in the struggle for existence as to make him or her the forerunner of a new and better adapted sort of bear?"

The work naturally divides itself into three main portions: (1) the chapters entitled "Darwinism Attacked," (2) those entitled "Darwinism Defended," and (3) those devoted to supplementary or substitute hypotheses. Nor must we omit the excellent introduction.

Almost at the outset we learn the author's estimate of the strength of the anti-Darwinian movement. After alluding to the rising wave of destructive criticism, particularly in Germany, we are told (pp. 4, 5): "Answers and defenses have appeared and are appearing. But in practically all these defenses two characteristics are to be noted, namely, a tendency to propose supporting hypotheses or theories, and a tendency to make certain distinct concessions to the beleaguering party. The fair truth is that the Darwinian selection theories, considered with regard to their claimed capacity to be an independently sufficient mechanical explanation of descent, stand to-day seriously discredited in the biological world. On the other hand, it is also fair truth to say that no replacing hypothesis or theory of species-forming has been offered by the opponents of selection which has met with any general or even considerable acceptance by naturalists."

The philosophizing dilettante in biology, or the sociologist straining to prop up some cherished hypothesis on a support reaching down into subhuman realms, will meet with a timely warning in Chapter II. After voicing a growing sentiment among embryologists that "the recapitulation theory of Fritz Müller and Haeckel is chiefly conspicuous now as a skeleton on which to hang innumerable exceptions" (p. 18), he writes (p. 21): "Unfortunately it is exactly on that weakest of the three foundation pillars of descent, namely, the science of embryology with its Müllerian-Haeckelian recapitulation theory or biogenetic law, that the child-study pedagogues have builded." And, referring to sociology, he writes, with more force than elegance: "As the proved part [of biology] is largely of the nature of facts of observation, isolated and unrelated, and the unproved part is composed of the large and sweeping generalizations, the plausible, provisional explanations, such as the various theories of heredity, of the results of struggle, of the development of mutual aid, etc., that is, is exactly the sort of material that the sociologist needs to weave into his biological foundations for the sociologic study of man, it is

exactly this unproved part of biology that the searching sociologist carries home with him from his excursions into the biological field. . . . Biology is not yet come to that stage in its development where it can offer many solidly founded generalizations on which other sciences can build" (p. 22).

Coming to the first chapter on "Darwinism Attacked," we find the critics of the selection theories classified as follows (p. 27): "Among the critics of the selection theories we must note two groups, differing in the character of their criticism more in degree than in kind, perhaps, but still importantly differing. One group denies *in toto* any effectiveness or capacity for species-forming on the part of natural selection, while the other group, a larger one, sees in natural selection an effective factor in directing or controlling the general course of descent, holding it to adaptive lines, but denies it outright any such *Allmacht* of species control as the more eager selectionists, the so-called neo-Darwinians or Weismannians, credit it with. This larger group of critics sees in natural selection an evolutionary factor capable of initiating nothing, dependent wholly for any effectiveness on some primary factor or factors controlling the origin and direction of variation, but wholly capable of extinguishing all unadapted, unfit lines of development, and, in this way, of exercising decisive final control over the general course of descent, i. e., organic evolution."

This second group is evidently "anti-Darwinian" in a very limited sense, and it is, indeed, a question whether Darwin himself could not fairly be assigned to it. Certainly Kellogg belongs here.

The various arguments against selection are presented in a forceful manner; and the general impression produced on the layman who follows them and appreciates their significance is that there is little left of "Darwinism" worth defending. And, indeed, the author himself seems to be in sympathy with a large part of the criticism, and reinforces it from time to time with evidence drawn from his own special studies. Even to summarize this mass of destructive criticism is hardly possible within the limits of a review. Much of it is already familiar to those who have followed the evolutionary discussions of the past twenty-five years. Some of the most telling objections are (1) the determinate or "orthogenetic" character of evolution believed to be shown by paleontology; (2) the relatively small number of variations large enough to be of probable selective value (biometry reveals a concentration about the "mode"); (3) the now admitted inability of selection to explain the complete reduction of vestigial (commonly mis-called "rudimentary") organs; (4) the fact that those trivial characters which distinguish species from one another are commonly of no assignable use to the organism (thus natural selection can not explain the "origin of species" [1] even if it is able to explain the development of adaptive structures); (5) the difficulty of explaining the correlations and coadaptations so characteristic of organic bodies, by the independent fortuitous variation of each component; (6)—akin to the last—the tax upon our imagination required by the belief that each one of the countless adaptive parts of the body attained its present

condition through a life or death verdict pronounced with reference to that particular part;¹ (7) the inability of natural selection to explain the beginnings of useful structures, *i. e.*, before they had reached the stage of usefulness; (8) the shortness of geologic time; (9) the purely quantitative character of the "fluctuating" or "Darwinian" type of variations (emphasized by the "mutationists"); (10) the inability of selection, unassisted, to differentiate species (need of "isolation"); (11) difficulty of explaining interspecies sterility by selection; (12) doubt as to the extreme rigor of the struggle for existence (a basic assumption of Darwin's); (13) natural selection needs the support of the sexual selection theory which is discredited (*i. e.*, if secondary sexual characters can be explained without the aid of any form of selection, why not the other characters?); (14) the falseness of the analogy between natural and artificial selection. And this does not complete the list. Truly we may agree with Kellogg that "there is a very real and effective amount of destructive criticism for Darwinians to meet."

How is this criticism met? The defense is much briefer than the attack, and, we think, far less satisfactorily presented. At the outset we are told (p. 129) that "much anti-Darwinism is futile and easily answered; much was answered by Darwin himself before ever the anti-Darwinians formulated it; much other anti-Darwinism is directed against a position which Darwinism, true Darwinism, has long seen the inadvisability, indeed the impossibility, of holding . . . these humiliating concessions, if humiliation is in them, only being made necessary because of the ill judgment and rash enthusiasm of certain too ardent and too conspicuous friends of Darwinism, the so-called neo-Darwinians." Some of these concessions are stated a few pages farther on (pp. 135, 136). "On the whole, . . . I think I speak perfectly fairly in saying that the believers and defenders of the natural selection theory to-day admit in large measure the validity of those criticisms which are directed at the incapacity of Darwinism, in its long familiar form, to account for the development of variations and modifications up to the advantageous or disadvantageous stage. They admit also the actual existence, and in abundant measure, of species differences which are of indifferent character, that is, of no especial utility, and make the consequent admission that such species differences can not for the most part be explained by natural selection. And they also concede, or at least most of them, including Weismann, do, the force of the criticism that the assumption of the occurrence of the right variations at the right time is a necessity for the development by selection of many if not most specializations of qualitative and of co-adaptive character, which assumption in turn demands an explanation of causes anterior to selection.

"And finally most selectionists concede that selection can not make new species by relying on the extremes of series of fluctuating or Darwinian variations because of the inevitable extinguishing or swamping of these extreme variations by interbreeding with the far more abundant average or modal individuals of the species."

See review of Pauly's work.

The "objections needing answer" are very briefly dealt with, and the reply consists largely of quotations from Plate and one or two others. This seems to us very significant. One is driven to the conclusion that, after all, the chief present strength of the natural selection hypothesis lies in that "curious paucity of satisfactory or at all convincing substitutory theory offered by the anti-Darwinians to replace that which they are attempting to dethrone." The celebrated case of the "leaf-butterfly," *Kallima*, which Kellogg handles more cleverly than convincingly (pp. 53, 54), seems to us a good illustration of this last proposition. It is easy enough to call this an example of "over-specialization," but such cases are far too numerous to be accidental (as witness the "gulfweed" fauna as a whole!), and our choice seems to lie between natural selection, on the one hand, and some quite inconceivable mode of self-adaptation, on the other; for we are almost driven to saying with Pauly: "*The cause must have had eyes*"!

The auxiliary and alternative theories considered are panmixia, germinal selection, intraselection, organic selection, isolation, Lamarckism, orthogenesis, and heterogenesis (mutation). To the first four of these, the author would apparently assign but slight importance, if any, in evolution. Isolation he treats of at greater length, an entire chapter being devoted to the various speculations which assume the importance of this factor in one or another of its forms. Orthogenesis, as Kellogg points out, may mean much or little. With the mystical type, represented by Nägeli, he has scant sympathy. On the other hand, he evidently believes that much modification may go on in definite directions without the aid of any form of selection. Concerning mutation, he calls attention to the "extreme meagerness in quantity of the real scientific evidence for the theory as a theory capable of explaining species-forming as a whole" (pp. 349, 350).

Toward Lamarckism Kellogg's attitude is properly one of suspended judgment. While recognizing the great difficulties encountered from the standpoint of heredity (pp. 262-274), he nevertheless offers an earnest plea (p. 382) for the *a priori* possibility (or is it probability?) of the Lamarckian principle. "In other words, when species differences and adaptations are identical with differences and modifications readily directly producible in the individual by varying environment, are we not justified, on the basis of logical deduction, to assume the transmutation of ontogenetic acquirements into phyletic acquirements, even though we are as yet ignorant of the physicochemical or vital mechanism of effecting the carrying over? Has natural selection's claimed capacity to effect species change, unseen by observer, untested by experimenter, any better or even other proof of actuality than that just offered on behalf of species modification as a direct result of the stimulus of varying environment and functional exercise? I can not see that it has" (p. 383). To the reviewer this declaration does not seem an extreme one, and, while by no means constituting a proof of the hypothesis in question, it is a sufficient reason for our withholding from dogmatic denial.

A more constructive view of "Darwinism's present standing" is offered us on page 374: "Selection will inexorably bar the forward movement, will certainly extinguish the direction of any orthogenetic process, Nägelian, Eimerian, or de Vriesian, which is not fit, that is, not adaptive. Darwinism, then, as the natural selection of the fit, the final arbiter in descent control, stands unscathed, clear and high above the obscuring cloud of battle. At least so it seems to me. But Darwinism, as the all-sufficient or even the most important causo-mechanical factor in species-forming and hence as the sufficient explanation of descent, is discredited and cast down. At least, again, so it seems to me." And once more, we are cautioned that "what Darwinism does not do is to explain the beginnings of change, the modifications in indifferent characters and in indifferent directions. . . . What is needed, then, is a satisfactory explanation of the preuseful and prehurtful stages in the modifications of organisms: an explanation to relieve Darwinism of its necessity of asking natural selection to find in the fluctuating individual variations a handle for its action; an explanation of how there even comes to be a handle of advantage or disadvantage of life-and-death-determining degree" (p. 376).

Here, then, is work for the future: "Let no ambitious student hesitate to take up the search for the truth about evolution from the notion that biology is a read book" (p. 377). And the volume concludes with a note of thoroughgoing optimism: "Biology was never a clearer or more inviting field for fascinating, joyful, hopeful work. To question life by new methods, from new angles, on closer terms, under more precise conditions of control; this is the requirement and the opportunity of the biologist of to-day. May this generation hear some whisper from the Sphinx!"

FRANCIS B. SUMNER.

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The Psychology and Pedagogy of Reading. EDMUND BURKE HUEY. New York: The Macmillan Co. 1908. Pp. xvi + 469.

Within the last decade or so a number of preliminary studies of a careful sort have been made upon particular phases of the reading process—upon eye movements, apperceptive processes, interior speech, the hygiene of reading, and the like. The more important of these investigations have been made by Cattell, Bagley, Goldscheider, Müller, Huey, Dearborn, Dodge, Egger, Erdmann, Secor, Quantz, Pillsbury, and Meumann. In the volume before us, Huey presents not only the results of his own experiments made some years ago upon eye movements in reading, but he summarizes practically all that has been done in the laboratory study of reading, and he digests a considerable part of the general literature treating of methods of teaching the subject. He also gives a brief résumé of the history of reading from primitive beginnings, and two chapters are devoted to the subject of the hygiene of reading. The book treats the subject more extensively and in a more thorough-going way than has been done heretofore. The experimental work is presented in an unusually interesting manner; and so, indeed, is the entire material.

The style is simple, but enjoyable and effective, and in this respect the book is quite in contrast to most of those covering this general field. It may be read with interest and profit by psychologists who are unfamiliar with the studies that have been made in this field, and also by the practical teacher who has had some training in general psychology.

Of the four parts of the book, the first only is strictly psychological. However, part III., dealing with the pedagogy of reading, is written from the psychological point of view, though there is an admixture of pedagogical logic and "common sense." In the first part, the author bases his propositions upon experimental data which have been carefully gathered; but in part III. he is much less precise, abandoning his experimental method altogether. The authors who are quoted with apparent approval in part III. have not themselves, with hardly an exception, followed the experimental method in their work. But to speak here more particularly of part I., the author's own work has consisted entirely in the study of eye movements in reading, and the conditions under which visual perception is effected most readily and adequately. This work has all been done intelligently and accurately, and the conclusions are drawn cautiously, tentatively, and in an admirable spirit. On some points there is disagreement among different investigators, but in the main there is unanimity in respect to the conclusions reached.

Growing out of the experiments on eye movements is a chapter discussing the nature of the perceptual processes in reading, and following this, chapters upon inner speech in reading, the interpretation of what is read, and meaning in reading. The conclusions reached in these chapters seem to be in accord with the general views previously advanced by James, Quantz, and others. Huey's conception of the development of meanings is that they depend mainly upon inner speech, which produces feelings or reactions of motor attitudes (page 167). But meaning may be gained also to a certain extent through the visual forms of words as such. This, he argues, is evident from the fact that we often apparently feel meaning in our reading before inner speech occurs. In reading aloud, for instance, one may sense meaning quite ahead of the stage reached in actual pronunciation of the words.

Part II., on the history of reading and of reading methods is interesting and important, but is not directly related to the main purpose of the book, which is to treat the psychology of reading, and its pedagogy as based upon the psychology. The historical discussion simply presents an account of the earliest methods of pictorial writing, the development of alphabetical pictorial symbols, the gradual development of words, and the methods pursued among early peoples in teaching children to read. The author has reviewed the methods employed in our own country down to the present time, following mainly in his study Reeder's history of reading and reading methods. In Chapter XIV., which treats of present-day methods in the teaching of reading, Professor Huey gives his impression of the value of the reading books which are commonly found in the schools to-day. He comments especially upon

the characteristics of the system employed in the Chicago Institute and at the Francis Parker School in Chicago. The author himself commends a method which combines the word, the sentence, and the phonetic methods, and he vigorously condemns the mere alphabetic method. He does not particularly commend the methods developed by Colonel Parker in Chicago, although his general attitude toward the teaching of reading would lead one to think he would favor this method, which causes the child to elaborate his own reading material based upon his experience in the school and outside.

In chapter XV, there is given a résumé of the views of writers like Dewey and Patrick upon the necessity of deferring the introduction of reading several years beyond the time when it is now commonly begun. The author thinks it would be best to have children learn to read late, and at home, which they could easily do if left largely to themselves. The present writer thinks Professor Huey is not consistent in the attitude he takes upon this problem. In his experimental studies he shows the great complexity of the processes in reading. By inference we might suppose that in the use of wrong methods a child could easily squander much time and energy and form wasteful reading habits; while under the guidance of a skilful teacher he might learn to read without waste at any point. The present writer thinks this is precisely the case; which would make it imperative that when the child starts reading he should be directed at the outset in all his work by an intelligent instructor. Again, Huey maintains that a child will pick up reading largely by himself if he is among books and a little counsel is given him at the right time. While this may be true in isolated cases, still, as a matter of fact, with the increasing complexity in modern life there is so much that is more attractive to the novice than the printed page, that the majority of children certainly would never learn to read by themselves, even in homes where books adapted to their needs are plentiful, and where there are people who can render assistance when necessary. Indeed, in such homes there is usually some one who can and does read to the child, and he is not impelled to take the trouble to master the verbal symbols for himself. The writer has made particular observations upon this point the last few years, and he is confident that even in a community where there is a larger number of intelligent homes than in the majority of places, the average child will not learn to read without much urgency, and he will not learn to read well without intelligent care being given him from the start, and continuing for a number of years. So it is probable that if reading should be deferred until the age of eight under the present educational régime, or if it should be left largely to the care of parents, the great mass of children would be seriously injured thereby. Such a suggestion could not be put into effect until the whole educational system and the constitution of the home were revolutionized.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. July, 1908. *La finalité en biologie et son fondement mécanique* (pp. 1-22): L. WEBER. - Finalism in the sense of causation by creative idea is dead, but biology still demands a finalistic conception which appears in the Lamarckian hypothesis. In the new form, it will probably appear that mechanical causality must always be completed in concrete reality by finality. *Le problème expérimental du temps* (pp. 23-47): G. RAGEOT. - Time, like space, is an abstraction from experienced duration and it is independently generated. Our belief in the external world comes from the fact that we are unable to get any connection between time, the I, and space, the not-I. *L'art et le mythe d'après Wundt* (pp. 48-78): M. MAUSS. - The conceptions of the Völkerspsychologie cramp the author and injure his conclusions, even making psychology vanish in metaphysics. *Observations et documents. Observations sur des erreurs "formelles" de la mémoire*: L. DUGAS. *Analyses et comptes rendus*. H. Delacroix, *Études d'histoire et de psychologie du mysticisme*: L. ARRÉAT. G. Revault d'Allonnes, *Psychologie d'une religion*: L. ARRÉAT. Henri Bois, *La valeur de l'expérience religieuse*: L. ARRÉAT. 'Abd-oul-béha, *Les leçons de Saint-Jean-d'Arce*: L. ARRÉAT. Dr. Hartenberg, *Physiognomie et caractère. Essai de physiognomie scientifique*. H. Ebbinghaus, *Abriss der Psychologie*. Stephan Witasek, *Grundlinien der Psychologie*. Léon Bloch, *La Philosophie de Newton*: JULES SAGERET. Emile Bréhier, *Les idées philosophiques et les idées religieuses de Philon d'Alexandrie*: FRANÇOIS PICAVET. *Revue des Périodiques étrangers*.

Graham, David. *The Grammar of Philosophy: A Study of Scientific Method*. Edinburgh: T. & T. Clark. 1908. Pp. xi + 383. 7s. 6d.
 Hannequin, A. *Études d'histoire des sciences et d'histoire de la philosophie*. 2 tomes. Paris: F. Alcan. 1908. Tome I., pp. ci + 264: tome II., pp. ii + 326. 15 fr.
 Van Biervliet, J. J. *La psychologie quantitative*. Paris: F. Alcan. 1907. Pp. 219. 4 fr.

NOTES AND NEWS

WE take the following from *Nature*: "Professor J. G. Frazer has made a good start in the work of his chair at the University of Liverpool by his opening address on 'The Scope of Social Anthropology.' It is characterized by all the lucidity of exposition and grace of style which we are accustomed to expect from the author of 'The Golden Bough.' His main object is to plead for the systematic study of savages, who represent an arrested, or rather retarded, stage of social development. They are, he is careful to point out, primitive only in a relative, not in an absolute, sense; that is, they are primitive in comparison with ourselves, not in comparison with primeval man, of whom we know nothing, and, so far as we can see at present, are likely to learn nothing. The province of social anthro-

pology falls into two departments, one embracing the customs and beliefs of savages, the other including such relics of these as have survived in the thought and institutions of more cultured peoples. The first department may be called the study of savagery, the second the study of folk-lore. The government of mankind, he goes on to show, is always and everywhere essentially aristocratic, that is to say, the dull-witted majority always follows the keener-witted minority. In the mental, no less than in the physical sphere, the struggle is internecine; but in the end the better ideas, which we call the truth, carry the day. Hence, even in a civilization like our own, we find the lower classes still following magical and other primitive practises of the same kind. Not that schemes for the regeneration of society form part of his programme. The study of the past must throw light upon the problems of the present, but the exploration of schemes of social reform is the business of the sociologist, not of the social anthropologist. Dr. Frazer closes a remarkable address by an impassioned appeal for the more careful study of that savagery which is so rapidly disappearing. 'How shall we of this generation look when we stand at the bar arraigned on a charge of high treason to our race, we who neglected to study our perishing fellow-men, but who sent out costly expeditions to observe the stars and to explore the barren ice-bound regions of the poles, as if the polar ice would melt and the stars would cease to shine when we are gone?'

WE learn from *The Nation* that the announcement is made that all the German universities, except perhaps that of Rostock, will be open next semester to women on exactly the same terms as to men. On the other hand, however, the Prussian Cultus Minister has announced that as a matter of principle women will not be permitted to enter the university teaching corps as privat-docents.

DR. FRIEDRICH PAULSEN, professor of philosophy and pedagogy at the University of Berlin, died at his home in Steglitz on August 15. He was born at Langenhorn in Schleswig, July 16, 1846.

JAY WILLIAM HUDSON, Ph.D. (Harvard), has been appointed assistant professor of philosophy in the University of Missouri.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

FRIEDRICH PAULSEN

DR. FRIEDRICH PAULSEN, professor of philosophy and pedagogy at the University of Berlin, died at his home in Steglitz on August 14. Professor Paulsen was born on July 16, 1846, at Langenhorn in Schleswig, the son of a prosperous peasant. He entered upon his academic studies in 1866, attending the universities of Erlangen, Bonn, and Berlin, and habilitated as a *Privat-Docent* at the University of Berlin in 1875. In 1878 he was made professor-extraordinary in the same institution, continuing in this position down to 1893, when he was appointed to the full professorship of philosophy and pedagogy. Most important of the books published by him are the following: "Versuch einer Entwicklungsgeschichte der kantischen Erkenntnistheorie," Leipzig, 1875; "Geschichte des gelehrten Unterrichts auf den deutschen Schulen und Universitäten," Leipzig, 2 vols., 1885, second edition, 1896; "Das Realgymnasium und die humanistische Bildung," Berlin, 1889; "System der Ethik," Berlin, 1889, eighth edition, Stuttgart, 1906; "Einleitung in die Philosophie," Berlin, 1892, nineteenth edition, Stuttgart, 1907; "Immanuel Kant, sein Leben und seine Werke," Leipzig, 1898, fourth edition, 1903; "Philosophia Militans. Gegen Klerikalismus und Naturalismus," Berlin, 1901, second edition, 1908; "Schopenhauer. Hamlet. Mephistopheles," Berlin, 1901; "Die deutschen Universitäten und das Universitätsstudium," Berlin, 1902; "Das deutsche Bildungswesen," Leipzig, 1906; "Gesammelte Vorträge und Aufsätze," 2 vols., Berlin, 1906; "Moderne Erziehung und geschlechtliche Sittlichkeit," Berlin, 1908. The "Introduction to Philosophy," the "Ethics," the "Kant," the "German Universities," and the "German Educational Systems" have been translated into English, all but the last by American authors.

In the death of Professor Paulsen Germany loses not only one of her ablest and wisest teachers and writers, but one of the most lovable personalities that ever graced the professor's chair. For more than thirty years this gifted man has lectured to large numbers of students on philosophical and pedagogical subjects, and has suc-

ceeded in arousing a vital interest in questions which are often regarded as lying beyond the horizon of all but specialists. His lectures and writings were remarkable for their clearness and sanity, and appealed not only to the "elect," but to wider circles of thinking men and women outside of the universities. Students from other departments and even persons not enrolled in the university flocked to his classes and all listened with profound attention to his magnificent presentations of difficult problems.

What particularly characterized Professor Paulsen's thinking was his fine mental balance and healthy common sense; his mind was Apollinic in its intellectual calm. He possessed a keen perception for philosophical extravagances and could not be deceived by spurious ideas, however brilliant they may have appeared on the surface. He could see right into the heart of a difficulty and set forth the meaning of a body of thoughts in simple and forceful language. His poise was the result of his deep love of truth, for which he cared more than for *Schule*; his clearness of vision and sagacity constituted the natural marks of a vigorous intellect. Although he was gentle and charitable in his judgments, displaying a beautiful hospitality of mind towards the opinions of others, he could be sharp and sarcastic when unjustly attacked or in dealing with pretentiousness and sham, and wielded the rapier with most consummate skill. But his battles were never personal, his quarrel was with ideas, not with men. He was not fond of controversies; it did not seem to him that anything good ever came of them. "The gratifying thing about a war with arms," he once said, "is that it unequivocally decides who is the stronger, but a war with words has no end and is never decided; in Proteus-like transformations error always succeeds in eluding the toils. The wise man will therefore aim, first of all, to tell the truth and not to ensnare error merely in order to refute it." His purpose, frequently expressed, was to see things as they are, and he felt that anger and abuse would neither make them different nor help one to see them in their truth.

Besides possessing a strong, healthy, and lucid mind, Professor Paulsen was endowed with indefatigable energy and a great capacity for work. Even during the last two years of his life, while suffering from an incurable disease, he could not be persuaded to abandon his post, and the articles and books which he published before his death show no abatement of his old-time intellectual power. His reading was wide and varied, as his writings show, extending beyond the confines of the subjects which it was his duty to teach. He had spent many years in preparing himself for his calling, but in making himself a specialist he did not lose his taste for liberal culture which had been developed in him in the humanistic gymnasium.

Of his sound and careful scholarship he gave particular proof in his two works on Kant and in his history of higher education in Germany, books which ought to silence the critics who do not seem to understand that clearness of thought and speech are not incompatible with learning.

The fundamental motive of Professor Paulsen's activity, however, was practical and ethical. Knowledge, he insisted, has value for the individual only in so far as it does something for him, in so far as it helps him to solve the practical problems of life, or assists him in his philosophical reflections, in other words, makes him wiser and more prudent. Knowledge that does not make him more efficient in his calling or give him a deeper insight into the nature and meaning of things has no value. It was impossible for him to pursue philosophy merely as a clever intellectual game. His chief desire was to endow it with a vital human interest, to aid the youths of his nation to reach profounder conceptions of life and the world, to convince them that their salvation and the salvation of the race lay in governing their lives by an ideal. He deplored the lack of well-defined aspirations in the age, but his optimism was great and he had an abiding faith in the triumph of the good. It was this ethical idealism of his which shone through all he said and wrote, and which together with his intellectual gifts and personal charm attracted so many young men to him and made him such a power for good in Germany. And no teacher of philosophy succeeded better than Professor Paulsen in making philosophy a living subject with a large part of the thinking public and in removing the suspicion under which it had fallen during the reign of natural science.

The men who came under the influence of Professor Paulsen's instruction not only admired him as a thinker, but loved him as a man. There was a personal charm about him which one could not resist. He rang true. One carried away from his lecture room not only light, but warmth. The man not only presented thoughts, but exemplified virtues. A course of lectures with him was an ethical education in itself. Without attempting it, he made those who came within the spell of his personality love modesty, simplicity, self-control, equanimity, courage, patience, justice, truthfulness, charity, and love of neighbor. And those who were brought into closer personal touch with him found that a deeper insight into his nature but intensified their affection for him. His modesty and sweet reasonableness, his calmness and gentleness, his honesty, his fairness, his considerateness, his freedom from vanity, envy, and all false ideals, were so conspicuous as to make companionship with him a thing never to be forgotten. In the sorrow over the loss of such a man as Friedrich Paulsen, it is a blessed consolation to know that

his name will be held in grateful remembrance by thousands of men and women whom he inspired with a love for higher things and who will endeavor, each in his own way, to transmit to the coming generation the precious heritage of the past.

FRANK THILLY.

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TYPES OF UNITY

UNITY, like most philosophical terms, means not one thing, as is often supposed, but many things. Anything, as commonly believed, has unity in so far as it is a separate, independent entity. Unity is individuality. The emphasis of attention seems to be on singleness of the thing, the separation from its environment. The implication appears to be that the thing may exist as independent of environment, may subsist without any real immediacy to itself and the environment: a conception which vanishes as soon as we attempt to realize it.

A second common use is that of indivisibility. A thing has real unity in so far as it is indivisible. Here the emphasis of attention does not seem to be necessarily on the separateness of an entity from its environment, but rather on the relations of differences within itself. This unity as commonly conceived is believed to be realized in a realistic form, *i. e.*, independent of consciousness or thought. Indivisibility may take on logical form, *i. e.*, a divisibility the denial of which would imply a contradiction. Accordingly, this type of unity of a thing is sometimes defined as an entity, every state of which is in every other state, a way in which rationalism often conceives the unity of the soul or the unity of the absolute. Or, on the other hand, indivisibility may take on the form of a substantive relation of whole and part. In some way the part is supposed to belong to the whole, to reside in the whole, and yet there is not believed to be any immediacy to all as in consciousness of a content. Parts in a way exclude each other and yet belong in the whole. Appeal is made to the word "belong" without being able to tell in what the "belong" could consist. This way of expressing unity is most often found in the crude forms of pantheism. However, in place of a passive stuff or substance relation, there may be substituted a dynamic, kinesthetic pull relation of parts to parts. Thus there is a pull of all the parts toward one center; or, instead of there being a pull of all the parts toward one center, each of the parts is supposed to pull every other part toward itself, all in such a way that though no part, quality, or state is believed to be really in any other state, the parts are nevertheless believed to be inseparable,

and thus form a unity. Here indivisibility means inseparability: a form of unity often emphasized in the atomic and physical world.

The points especially to be noted about these two forms of indivisibility is that in neither case is there believed to be immediacy to all as we have it through consciousness. Indeed, there is felt to be no necessity of consciousness. Accordingly, the logical form of indivisibility secures an immediacy throughout the qualities by believing the qualities of the content in some mysterious way to be fused into one another and yet to remain qualities. This type of indivisibility makes quantity impossible. The substantive or dynamic forms of indivisibility deny this fusion of qualities in the content, but fail to secure any immediacy throughout the qualities. Rather they appeal to the so-called *fact* of inseparability. Here quantity is believed to be possible, but at the sacrifice of any thoroughgoing immediacy. Both the logical and the substantive or dynamic forms of indivisibility, by defining unity without reference to the immediacy to all as given in consciousness of the content, are compelled to define it in terms of the *bare* content; and, therefore, in order to secure a real immediacy, appeal is made in the one case to a fusion which destroys the qualities, and in the other case, after denying any fusion, to the *word fact* without any possibility of pointing out such a fact of immediacy; and, indeed, logically, no immediacy, no unity, no plurality are here possible. One's meaning vanishes when an attempt is made to realize this type of unity.

A third type of unity is that of mere wholeness or allness. It may be applied to one thing or to a group. In both cases it is believed to be purely formal and to have nothing to do with the reality about which it is affirmed. Thus we speak of the whole table, or all the stones in the road, believing that the allness or totality has nothing to do with the structural nature of the table nor with the separate real stones. It is assumed that the reality is external to the allness and also that this allness may in some way exist, expressing supposedly an immediacy to all and yet not implying it in any way, realized only in consciousness. Accordingly, here, as in the second type of indivisibility, there is an appeal to immediacy as a word or fact without any possibility of showing just where the immediacy is or what it could really mean. As before, when we attempt to realize it our meaning vanishes.

A fourth type of unity is that of continuity of bare content: a surface forms a unity where there is no break in the extensity. A tree or a stone is a unit when there is no break in the continuity of qualities. In this type of unity there is believed to be an immediacy of adjacent parts, as in the case of the parts on the opposite sides of a geometrical plane passed through the spatial continuum,

but there is not believed to be any structural immediacy to all the continuum at once. The immediacy such as we have given in any consciousness of the content is excluded by the belief that the continuum can and does exist without the structural need of consciousness. Accordingly, immediacy being confined to the bare next-to-next aspect of the content, there is a failure to secure any immediacy to all, and consequently a failure to have any whole, any continuum.

A fifth type of unity is that of so-called concatenation. It is a unity of temporary continuity of bare content; a unity of conjunction. Things influence each other, but they do so externally. There is a linkage of facts, but a linkage that implies an immediacy only between each member of the series and that which directly precedes or directly follows. The world may be a sand heap, but whatever immediacy there is, is limited to the immediacy of each particle to those that directly surround it. These surrounding particles are linked to still others, and these to others still farther on, etc. Things may drop specific connections and form new ones, and so the world is joined together, but avowedly there is no immediacy to all the members. Allness, wholeness, is conceived to be purely formal. Thus, in the series *A B C D E F*, etc., *A* is joined to *B*, *B* to *A* and *C*, *C* to *B* and *D*, *D* to *C* and *E*, *E* to *D* and *F*, etc., but there is no immediacy to *A* and *C*, *B* and *D*, *C* and *E*, or *A* and *F*. There is no immediacy to the beginning and end of the series; there is no series.

As in the third and fourth types of unity, there is a failure to realize any whole, any real series, group or extended conjunction. We may add that one who conceives the unity of the world as a mere concatenation can never be impressed by any argument for the unity of the world which attempts to prove that unity by showing that no two objects are so independent but that for changes in one there are corresponding changes in the other. Thus says one author, "You can never show me any two physically real objects which are so independent of each other that no change in one of them need correspond to any change in the other. On the contrary, the very cases mentioned are cases of objects such that certain changes in one do very really correspond to very precise changes in the other, and the very beings of each can only be defined by admitting the possibility of just such a change."

Such an argument has force only as there is already implied immediacy to all as expressed in consciousness. And the need for such an immediacy can have force to the opponent only if he is shown that his own statements lose all meaning except if immediacy is implied. It is not the correspondence in the chain between two supposedly independent beings that gives or

unity any more than does the lack of it. It merely means that some people are more impressed by such illustrations because they tend to base unity on adjustment or order in the bare content, or, possibly, because of their accustomed views of separation-or externalism they come to possess more strongly the feeling of immediacy in such cases.

A sixth type of unity is that of order, adjustment, or harmony conceived as a naturalistic product devoid of any structural need of consciousness. There is an attempt to conceive order and adjustment as a matter of bare content without any reference to the immediacy to all as given in any consciousness of a content. The criticisms of the third, fourth, and fifth types of unity equally well apply here.

A seventh type of unity is that of purpose. According to one meaning, the purpose is sometimes believed to bind or hold the parts of the content together which is attributed to the purpose. There appears to be a failure to see that unity does not consist in the holding or binding together so much as in what is implied in any such active participation. A second way of conceiving purposeful unity is to interpret it in terms of end. The means, it is said, are all intimately connected with the end, the final term. Teleological unity is said to be the true type of unity. Here there is emphasized the fact of immediacy to all, but only as it happens to be found in purpose and activity toward an end. It fails to realize that immediacy to all may be realized where there is no purpose, no end in view, and that, therefore, purpose is only an accidental though extensive accompaniment of the fundamental implication of immediacy to all.

The eighth type of unity is that of immediacy to all as realized in the consciousness of any given content or as expressed symbolically in the representation of experience not now actual. This type of unity emphasizes the structural need of consciousness for any unity, and points to the fact of the immediacy as realized in the consciousness of the qualities of experience. It contends that immediacy means nothing except as realized in the fact of consciousness. Accordingly, order, harmony, adjustment, continuity, wholeness, indivisibility, inseparability, purpose, etc., become specific forms always involving this type of unity. No one of these forms any more than chaos expresses unity except as each embodies the common features of immediacy to all as realized in consciousness. For certain interests I desire harmony, adjustment, continuity, allness, or inseparability, but there is no more specific unity involved in one desire than another. They are merely different life interests.

We have thus the following general types of unity: (1) indi-

viduality, (2) logical indivisibility, (3) substantive or dynamic indivisibility, (4) allness, (5) bare continuity, (6) concatenation, (7) harmony, adjustment, or order in the bare content, (8) kinesthetic purpose, (9) teleological unity, (10) immediacy to all.

Our principle of classification lies in the differentiation of those descriptions of unity which, on the one hand, define unity without reference to consciousness—descriptions which, logically, though not always awarefully, are confined to the bare content—and, on the other hand, such a definition of unity as recognizes that apprehension of the content whereby there is a unique immediacy to all the content, which is essential to any existence, though this immediacy may not be mine nor my neighbors.

We may now deal more at length with some of these unities as illustrated in certain philosophical views of the world. On account of the limitations of space, we will restrict our illustrations to substantive or dynamic indivisibility as found in crude pantheism, logical indivisibility as revealed in rationalistic theism, and bare continuity as found in materialism.

The most fertile grounds for discussion of unity are probably to be found in polemics on pantheism or in discussions concerning monism and absolute idealism. We shall first consider certain familiar ways in which pantheism and theism portray world unity. A common way to describe the unity of pantheism is as follows: "Just as the waves are part or mode of the ocean, just as each finite space or time is part of one infinite square or time, so is each finite thing a part or phase of the one infinite existence"; or, "just as space is the background and possibility of figure, so is God the background of the world." Possibly in the crudest form of pantheism the world source may be supposed to emit the finite or even to pass to a species of self-redemption. Part, mode, emanation from, are thus believed to be consistent with pantheistic unity; a unity of bare content.

The rationalistic theist in scorn retorts: "All such views are products of the imagination and result from the attempt to picture that which is essentially unpicturable." "God," he says, "is one and indivisible, not an infinite stuff or substance; because God is an agent, a cause, and every agent is a unit one and indivisible."

Here the rationalistic theist substitutes for substance agency, and for part and whole unity, absolute indivisibility. According to our illustration, the theist wants (1) pure intelligence, (2) non-spatial imagery, (3) causality, (4) absolute indivisibility as logically defined, in which every quality is literally in every other quality,—a reality without parts. As a consequence he must conceive the relation of the world to God in a very different way from that of the

pantheist. The world, he says, can be no part, share, nor emanation of the world ground. God's absolute unity as a logical indivisibility must forbid all identification of the human and superhuman.

But the finite person also is an agent, and he, too, is said to be a true unit. How, now, does this theist attempt to reconcile the finite's rise and continuance with the divine unity and existence? Since both the human and the divine are real units, the theist tells us a man can not be made out of or be emanated from anything. He must be posited as one single fact: "Creation alone," it is said, "reconciles the rise of finite unity with that of the infinite existence."

Having observed this theistic notion of unity in operation, we may now ask, How does this species of theism itself describe its own type of unity? "Being," it says, "is compatible with plurality of attributes only as each is an attribute of the whole thing. Any conception of diverse states which are states of only a part of the thing would destroy its unity. The entire being must be present in each state." Again it is said, "The only way in which a being can be conceived of as entire in every mode is by dropping all quantitative and spatial conceptions and viewing the being as an agent and the modes as forms of its activity." Here we have the logical form of indivisibility.

In view of such opposition between two great tendencies of thought, we may ask, Why does activity in theism give unity more than does space, time, or substance as used in pantheism? Is it because of the presence of distinctions in space, time, or substance and of their absence in activity? Hardly, for without distinctions there is no activity. Is it because of the presence of parts in space, time, or substance and of their absence in activity? If there are differences in activity, number is possible, and if number, then quantity and parts are distinguishable. Quantity may be present in activity as truly as it may be in space or time. Space and time may be as truly qualitative as any activity. It is merely a question of the attitude one assumes toward either. The same is equally true of substance. There is evident objection on the part of the theist to spatial imagery. But why spatial imagery more than other imagery? In any case imagery is not something foreign to the mental agent. Only minds image. And the attributes of imagery must, after all, to an extent, characterize their subject. Accordingly, we conclude that if agency is one, for no less a reason is any space, time, or substance truly one.

However this may be, theistic unity has its own special problems. How shall we reconcile the one that is a posited created unity with the growing human? Growth is either a fact within or external to

this finite created unit. If external to the original germ unit, then evidently humanity either never grows or each human is a series of individuals, so-called souls. But if the growth is internal, then the objections to quantity as against space and time apply to the growing unit.

But striking deeper into the problem, what shall we say of the theistic definition of unity as quoted? Where is the reality in which its entire being is present in each state? The self is hardly such an affair. The experience of pain in my arm can hardly be said to be in the thought of the square root of two. Even the conclusion of a reasoning process can hardly be said to be in nor identical with the premises. If we seek to escape this conclusion by saying what is true of the empirical ego may not be true of the metaphysical ego, we are confronted with the far more difficult problem of the precise relation between these two realities. No doubt there is an allied truth which this definition approaches, but the definition fails to differentiate properly the essential of true unity. Quantity is a fact of mental life if it is a fact of anything. True unity must harmonize the quantity aspect in experience without making quantity appear an illusion. But, after all, any quantity is realized only through true unity. A part means nothing except in reference to the whole. The whole is nothing when there is no difference present. True unity is essential to quantity: quantity is not in the least detrimental to true unity. Pantheistic unity is rejected by theism because of apparent plurality; a difficulty it attributes to the use of spatial imagery or the use of substance concepts on the part of pantheism instead of realizing that the difficulty of pantheism lies in its attempt to define multiplicity mid unity in terms of bare content without a real immediacy to all as in consciousness, in which case the appeal to unity on the part of pantheism becomes a mere appeal to the *word fact* without any ability to point out anywhere such a fact. Its modes are thus not modes of anything. Rationalistic theism demands an absolute unity without any quantity aspect, but fails to retain its own unity as soon as it applies the notion to experience. In short, theistic unity when applied to experience falls prey to the very objections urged against pantheistic unity, for though rationalistic theism recognizes the need of immediacy, it defines unity in a way so as to take no heed of consciousness.

Why, then, this objection to space, time, and substance concepts? Why this satisfaction with activity? The objection to the cruder forms of pantheistic unity is due to the peculiar way in which their parts and their sum are viewed. The parts in objective quantity tend to be conceived as absolutely exclusive of each other, according to the identity of fixated content and without any element of im-

mediacy to all. Thus when perceiving space, there is a tendency to conceive the space beyond perception as not present to any consciousness. Social intercourse emphasizes the same view-point. Different persons are believed to be busied about different parts of space, some of which you have perceived, some of which you or others may perceive, but all of which no one perceives at once. Thus objective quantity comes to be viewed as a continuum without any immediacy to all. When divided or conceived as potentially divided, it is supposed to be an aggregate of independents or of conjoined parts without any immediacy to all the parts. On the other hand, there is commonly a greater tendency to believe that activity is primarily a feature of subjectivity,—a feature of consciousness,—i. e., a fact of immediacy. It follows that there is less tendency to view subjective quantity or activity as an aggregate of mere excluding parts than is the case with objective space or time. Accordingly, there is more objection by the theist to space, time, and substance concepts than to the concept of activity because of a certain element in experience which he feels but fails to properly differentiate or use. This element is the element of immediacy as in consciousness.

Theistic unity, we said, attempts to exclude quantity, but at the same time strives to retain in a mysterious way quality distinctions which must be wholly present in *each other*. Theistic unity is not a unity of simplicity, but, on the contrary, is supposed to be possessed of a wealth of qualities. In fact, it is an abstraction in which absolute immediacy is conceived as an entity and within which there is inconsistently conceived a wealth of qualities. It is a unity of absolute indivisibility in the bare content; that type of unity we have called a logical indivisibility; a unity that secures immediacy by logically sacrificing plurality, just as pantheism secures plurality by logically sacrificing immediacy. Each supposes it gets what it really loses by appealing to the bare word fact. As a consequence, both unities are false. Accordingly, we have a peculiar *consequence* from theistic unity, thus: All effects must be simultaneous with the cause. Any change in one part of the world must be instantaneous throughout the world. In a stream of causal changes the beginning and the end are at once, for nowhere in any unit must there be a distinction of before and after, nowhere must quantity arise. God is an eternal now, for past, present, and future are one. Each is wholly present in the other. As Professor James has well said, "No quality can be ascribed to any part of the whole without at once qualifying the perfect whole."

We have contrasted the unity of crude materialistic pantheism, a unity of part and whole abstracted from all immediacy, with that of rationalistic theism, a unity of absolute immediacy, without quantity distinctions.

In passing to materialistic unity, we may say pantheism, though professedly not necessarily materialistic, is materialistic just in so far as it tends to conceive objective experience, or, in fact, any experience, abstracted from the element of immediacy to all as an ultimate fixed reality, for reality conceived as essentially without the element of immediacy to all is, in the broad sense, materialism. In a narrow sense materialistic unity is a continuum without the element of immediacy: a continuum any portion of which is believed to be indifferent to all else.

Thus to the common man the board, the river, the wire, the table, the stone, etc., are one in so far as there is no break in the prime qualities that make up these things; but the common man never for a moment believes there is any immediacy of the two ends of the river or of the parts of the wire, table, or stone unless it would be the parts that would abut on opposite sides of a geometrical plane passed through any portion of the object. A materialistic unity is always a next-to-next or more-and-more without any thought of immediacy that must embrace every next, the beginning and the end as well as any particular next-to-next.

Now crude pantheism and materialism logically can not have any plurality, any quantity, mid unity, for in both systems the attempt is logically to exclude any unity or identity of immediacy to all. Consequently, in pantheism the parts are not parts of any whole. You can not have a whole of parts, for the whole is purely formal. You have merely parts. But if the whole is real, then in so far as it qualifies the parts, the parts vanish. Again, you can not have parts of a whole, for in so far as the part qualifies the whole, it vanishes, and in so far as neither qualifies the other, you have a dualism of parts and whole. The same is true of materialism, for you have either a continuity and no parts or mere parts and no continuity. In general, from the point of view of crude pantheism or materialism any subject must be either the same or different from the predicate. If the same, then nothing has been predicated; if different, then what you predicate is false. Here the only identity that logically is allowable is that of no difference. To be identical with is to be not different from. To be not identical with is to be distinct from. Omit the unity of immediacy to all, confine yourself to the use of identity as no difference, characteristic concepts of materialism, and you find that in so far as things are different they fall apart, and in so far as they are not different they fall together and cease to be. Hence pantheism and materialism fail to secure any plurality mid unity, and, indeed, if carried to their logical conclusion, they fail to retain any unity whatsoever. By way of digression, we may say that the realist who attempts to

define realism as devoid of the immediacy of consciousness in the same way fails to secure true unity in the objective world. However, not all realists are of this type.

On the other hand, the rationalistic theist secures unity by divorcing all quantity, but quantity is a factor in the world and must be taken account of. It in some sense must qualify the whole. True, the rationalistic theist often tells us that the self, the soul, thinks quantity, but in so doing he solves his problem by placing it in mystery. In some mysterious way the self does it. Intelligence by virtue of intelligence posits plurality, and that is the whole story. In a measure this is true, but mystery does not solve. What he has failed to do is to be consistent and to show analytically what is the real element in intelligence that makes possible your quantity and your plurality; what is the element that gives you your unity.

It is possible to think of objective fact as divorced from immediacy; immediacy to all the different parts as actually realized in the consciousness of any perceived object. This immediacy is one of the prime elements believed to be divorced when the common man speaks of unconscious matter. It is possible to think of part and whole content without recognizing the immediacy involved. It is possible to think of continuity without believing in any immediacy to all the content. But it may be added that such beliefs represent rather tendencies or movements in thought. One never finds pure unadulterated pantheism, materialism, or the cruder forms of realism in any defense of them. They are mixed with the very elements they seek to divorce. The only unity that satisfies the demands of explanation is that of conscious immediacy to all, or throughout all the content; immediacy, as in actual perception, considered as a direct experience, where the parts exist side by side as parts by virtue of their being known or experienced at once as parts, or symbolic immediacy, as in symbolic situations of imagery or conceptual knowledge.

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ETHICAL VALUE¹

THE voluminous literature on valuation which has appeared during the last few years has served at least to bring out more clearly a fact which would not seem to the psychologist to be in great need of demonstration. This is that value belongs to objects of consciousness, not to objects or things apart from consciousness.

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Ethical value is, then, the value which belongs to objects in the ethical consciousness. The ethical consciousness has for its object conduct. The conduct may be that of the agent himself, when this is envisaged as object of deliberation, choice, and effort; or it may be that of others, as object of approval or disapproval, or, finally, it may be again the agent's own conduct viewed likewise as object of approval or disapproval. In all these cases conduct has two aspects. On the one hand, it is a psychological process. On the other hand, conduct is an outward behavior in an environment of nature and persons. The ethical in the proper sense considers the psychological process not in itself, but as aiming at certain ends which are discovered in the world of persons and things. It likewise considers behavior not as outward action, but as governed by choice with the implied standard of valuation and ultimate motivation which choice involves.

To get at the same thing from a different line of approach, ethical value is the value which satisfies (or arouses dissatisfaction in) an ethical person. It is what a person desires or rejects, approves or disapproves, when he is in an ethical attitude. Just as, conversely, if asked, "Who is the good man?" we might reply, "He is the man who chooses and executes what is good." This means not only that the tree is known by the fruit, and the fruit determined by the tree; it means also that the act—the fruit, the value—can not be analyzed except as we include relation to the choosing or approving subject as one of the factors, and likewise that the choosing or approving subject is not an ethical subject except as he is considered with reference to action or is what we frequently speak of as a person. For a "person" is defined not in terms of choice, feeling, and intelligence, but in terms of rights and duties.

The first query naturally is: Is value to be described, or is it only to be felt? If it belongs to the world of appreciation, then how can we claim it for the world of description? My answer will be in effect that the particular kind of value which is ethical is a rational and social value. It has intellectual, as well as affective and instinctive, elements. It is, in the phrase of recent discussion, "judgmental." By abstraction it may be both described and felt. I shall attempt first to state certain general characteristics of the ethical consciousness on its volitional side, then on its emotional side; the intellectual elements will be regarded as involved in both these aspects in so far as they rise to the ethical plane.

On the volitional side five aspects may be noted: 1. The ethical consciousness is a choosing or valuing consciousness, implying at least a formal subject as active in the process. This feature is what

Kant had in mind when he insisted that the only unqualified good is the "good will." Just because the essence of ethical value requires the valuing activity itself, it can not dignify any object considered apart from this activity with full ethical value.

2. In the second place, the ethical consciousness chooses or values with reference not to various independent or quasi-independent ends or standards, but with explicit or implicit reference to a system of ends, a single standard. The formal unity of subject or self implied in any act of choice as noted under 1 must attain further organization to satisfy the necessities of such a system of ends or valuations. An ethical self, as implied in an ethical consciousness, is responsible; it recognizes all its acts as its own; it gets its own unity in the act of bringing all its acts into a system of values.

The measurement, actual or possible, by a single comprehensive end is one point of difference between ethical and economic value. In economic valuation, objects which satisfy are given value in so far as they may be exchanged and thus measured up, *one with another*. But each object so valued needs no other credential than that it is wanted. "All wants look alike to me," is the attitude of the market. It gives each good its price, but each is equally valid. If one conflicts with another it is merely because the buyer wants one more than another. He can have both if he has money enough. The only collision or contradiction between them from the economic point of view is thus due to something external to the wants or values themselves.

We may compare the competing wants in the economic sphere with the images which arise in consciousness, each with its own interest and pleasurable tone. Merely as images they do not contradict one another, although one may have so great intensity as to displace others and itself keep the center of consciousness; so far as we are supposing associations to be by "contiguity" or by any other external character, we are on the same basis as when we measure our different wants, not by their intrinsic relations, but only by the external standard of whether we have money enough to afford both.

What happens when we pass to the worlds of truth and morality? We construct a unified world. In the case of truth it is a world in which one objective experience is organized by the aid of the concepts of one space and one time. In the case of moral valuations the various values are unified by bringing them into relation to one purpose or one standard, and subjectively to one self, one character. Moral consciousness implies unity of attitude, of purpose. Moral value implies a comparison of various ends, or values, each desirable in itself, but seen to require revision and reconstruction if it is to be made a part of a single personality. On this basis, then, we have

a moral world with its law of contradiction, just as we have a world of truth.

3. But the mere formal aspects of choice, and choice by a self according to a single standard, may be further specified by a characterization of the *kinds* of choices. Two such general kinds of choices have been recognized by moralists as marking the ethical consciousness: (a) The choice between "higher" and "lower," coinciding, in part with a distinction between the more rational or ideal and a more immediate or sensuous value; (b) the choice between social and unsocial conduct. This latter may be brought under the form of (a), since the social may be regarded as the "higher" value, but it does not coincide with that. Stating this third criterion of the ethical consciousness in terms of the self, we may say that it implies the development of a rational or ideal self, and of a social self.

4. Finally, a consciousness in which there is this mutual determination of the value of its objects by the selecting or approving agent, and of the agent by its choices or approvals, is a consciousness in which values are "objective." Not objective in the old sense of an ontological sort, nor in any sense which implies a moral order independent of the subject, but objective as implying a moral order which is social and rational, an order in which every member gets his own worth by entering into relations toward his world of nature and persons, just as he invests them with worth by relating them to a conscious valuing self. Every value in the system is affected by this relation.

So far we have defined moral value in conative or intellectual terms. We now examine briefly its affective or emotional aspects.

Is there any peculiar affective or emotional quality in ethical value? Three attitudes are here possible.

1. The hedonist says it is the affective tone, and nothing else.
2. The moral sentiment school holds that there is a certain emotional "tang" or flavor. The specific emotion which characterizes the ethical is variously designated. With one it is sympathy, with another resentment, with another the instinctive revulsion of a refined nature against what is "low" or coarse. Others again find it in respect or reverence, or in the "feeling of ought."

3. A third view would maintain that there is nothing distinctive in the affective or emotional element.

We can see how these various views abstract various aspects of moral value. Both hedonist and moral sentiment writers abstract the psychological side. One finds the affective tone the important thing, the other the emotional color. As against the hedonist the point of Plato and Aristotle is sufficient. Not pleasure, but pleasure in the

right objects, is ethical. The moral sentiment school is less abstract, for there is a more or less definite instinctive, emotional root for the two content aspects; viz., the distinctions between higher and lower, and between social and unsocial. For the higher-lower distinction there is probably some emotional basis in shame, disgust, contempt. For the social *versus* the egoistic reaction there are the emotional roots of sympathy and pity fostered, if not created, by sex feeling, parental feeling, and sympathetic resentment as part of general group action.

The feeling of ought or of respect, on the other hand, belongs to the attitude in which something is presented as standard of action, instead of appearing as the outgrowth of the self's own interests. It is because a negative brings about a stronger emotional tide than a positive free-moving tendency that we have no such unique term for the feeling when moral value emerges as a positive. We then have to speak of moral enthusiasm or love for goodness. These two sentiments may therefore be regarded as more definitely related to ethical value.

Any or all of these moral sentiments may enter into ethical value. Without some affective or emotional color or intensity there would be no value. But it is not the presence of any or all of them which makes it moral. The moral must get its quality as a relation between the psychological and the biological or sociological, and this experience as a rational experience is not capable of being experienced in purely emotional terms.

Finally, we may verify our analysis of the ethical consciousness by considering it genetically. We may distinguish four lines along which ethical values develop.

1. Ethical values are formed by rationalizing and socializing the elemental needs. The organism has certain needs for food, shelter, and, in general, for maintaining a life process. Whatever satisfies these is good. The character of these needs will change as civilization advances, or as the individual gains in intelligence. Psychologically stated, the environment presents possible satisfactions which stimulate an intellectual activity. The imagery and thought thus evoked, at first perhaps as instruments in the satisfaction of organic needs, become themselves interesting. Art and science are born. The rationalizing and idealizing of life thus leads to a distinction in values which has ethical meaning as soon as it is consciously apprehended. Other needs of the life process take on ethical significance as they become socialized. Self-defense, possession or control of food and shelter, have at first biological value. When they are asserted not by A as an individual organism, but by A as member of some group, they become rights. They are now in the moral

sphere, and are among the values most highly prized. One great line of the development of ethical values lies, then, from the needs of the life process, through rationalizing and socializing of the objects, on the one hand, and of the self, on the other. Three of the Greek cardinal virtues seem to have developed along this line.

2. Another important path to moral valuation leads from group or class valuation, reinforced frequently by emotional reaction. It is, of course, true that a group valuation may depend in some cases on utility and thus fall under the preceding head. But I have in mind here those group valuations which turn on the question whether a man belongs to our group—our kin, our class, our sex, our religion—or to some other. A number of our terms for approval, *e. g.*, “noble,” “gentle,” “kind,” and a still larger number of terms for disapproval, such as “base,” “villain,” “rascal,” “knave,” “mean,” and the like, testify to the early grounds of valuation. “Bad” has possibly an element of sex valuation, as well as the contempt for what is weak.

3. A more complex basis of estimation is traceable in such conceptions as “honor” and the “*honestum*,” or the Greek “*Kalokagathia*.” These combine the group basis with the emotional or utilitarian basis that is common to a given group. To transform both these judgments and those of 2 to ethical judgments we must, (a) change from the limited group standard to the human, the “universal” standard; and from the emotional test to that which we can justify. The jurat attitudes embodied in such concepts as law and obligation are not themselves primarily valuations, but they have played an important part in the rationalizing and universalizing of group valuations. (b) We must change from judgments passed by a group, and by group-members, accepting without reflection the customary group standards, to reflective judgments framed by each individual—the judgments of conscience. This implies the gradual rise and emergence of the personal self referred to in our first analysis.

4. The individual emotional and instinctive aversion and recoil from certain acts is a source of such conceptions as “foul,” and is a factor in such concepts as “impurity,” where there may be another element due to religious sanctions. Shaftesbury, the most famous advocate of this standpoint, himself points out the need of “forming” a taste, and reaching a critical, *i. e.*, a rational and social, as contrasted with a merely instinctive, reaction.

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REVIEWS AND ABSTRACTS OF LITERATURE

Philosophie der Werte: Grundzüge einer Weltanschauung. Hugo MÜNSTERBERG. Leipzig: Verlag Johann Ambrosius Barth. 1908. Pp. 486.

The book before us is in spirit wholly in accord with the essence of transcendental idealism, the continuity with which is fully acknowledged in the preface. After the first few chapters of polemic, we find it moving almost exclusively in the realm of ideological schematism. But this essential identity is one which leaves room for a profound difference—not only such as one would expect from the well-known philosophical positions of the writer and from his acknowledged originality, but that still more significant difference which arises from the fact, understood by no one better than the author himself, that, in one sense at least, "time makes ancient good uncouth." Not only has time seen the bankruptcy of panlogism in its extreme intellectualistic form, but also of science in its dogmatic form. It is through such experiences, according to Münsterberg, that the problem of values has come to the surface. "Through the world of things shimmered first weakly, then more clearly, the world of values." . . . But "a mere belief in these values and a preaching of them does not suffice" . . . "With a mere transvaluation of values little is accomplished until the deepest essence of valuation is revealed. What is lacking in our modern philosophy is a *closed system of pure values*."

In these words the program of the book is given, and with them the spirit of absolutism again raises its head after the onslaughts of relativism and pragmatism. Strengthened by its contact with voluntarism and its wrestling with the concepts of validity and value, it appears in a new form with which pragmatism will have to reckon. For if a transcendental logic when translated into the speech of valuation is ultimately not more convincing, it is at least more intelligible. Quite apart from the special consideration that Münsterberg handles this language with extraordinary skill and has conceived the ultimate problem of valuation with unexampled clearness and vividness, the general development of thought has brought us to a point where it is easier to conceive value than truth as a predicate of total systems, and where we are predisposed to expect much from a philosophy which finds the ultimate essence of the world in value and sees the failures of partial philosophies in their over-emphasis of one type of value, usually existence-value (p. 440). In this expectation we are not disappointed by this remarkable and timely book.

The first part is devoted to a criticism of relativism, especially in the form of *Psychologismus*—in the well-known manner of the author—and to a positive "anchoring" of the world of values in a single incontestable value. Here the method is Kantian in form, including a logical and a psychological deduction, but in spirit it does not differ from that of the ontologists in their search for a concept which includes reality. In this

case, however, the *desideratum* is a pure over-individual volition which requires merely to be appreciated to be absolutely willed. This is the *Wille zur Welt*—presupposed by and inclusive of all other forms of will—to this, that and the other—that the reflection of the philosopher has disclosed. The will to make of our individual experiences a world is an over-individual act presupposed in all individual acts and realizations. This is not, however, a matter of proof. Whoever begins to argue the matter with us, says the author (p. 75), must have already affirmed and thereby acknowledged this will. And yet, if he does not exactly put his faith on a syllogism, like others from Anselm to Newman, he does not disdain to bolster it up with a disjunction—a practical alternative for the will: "Our experience is nothing but our experience or it is an absolutely valuable self-existent world. There is no third possibility." Accepting the latter alternative, as, indeed, he must, he concludes—I give the German because it loses by translation—"Wo ein Erlebtes zusammentrifft mit dem Willen, das Erlebte als Welt zu nehmen, da muss das Widerfinden des Erlebten somit die schlechthin gültige Erfüllung eines schlechthin wirksamen Wollens sein. Gerade damit vollendet sich aber für uns ein absoluter Wert, den wir ruckhaltlos anerkennen" (p. 85).

Thus the chief problem is logical; in this insight of the practical reason the whole world of values is to be anchored. But this is not all. Such a pure volition can only be one which is quite apart from individual feeling and desire. "To understand absolute values means to learn to apprehend how our will, apart from all obligation (of the person), can become an over-individual longing which, without relation to personal pleasure and pain, finds its satisfaction in the true, the good, the beautiful, and the holy." But to apprehend this is not so easy. Having driven out all desire and feeling of the individual—and with them all psychology—from the portal of the temple of pure values, it is, none the less, necessary for the priest, in order that there may be worshippers, to admit them at the rear; it is necessary to show that absolute, pure values are at least psychologically possible. Thus arise certain *Vorfragen*, as Münsterberg calls them—rather persistent after-thoughts, one can not help thinking. "Why," he asks, "do we as individuals will that which has absolutely nothing to do with us, and secondly, why do we find satisfaction in that which has absolutely nothing to do with our own feeling?" Why indeed? The argument here is subtle and difficult, and can not be reproduced except *in extenso*. It seems to turn upon the conception of an experience of satisfaction which is not feeling and of a will which really does not will anything in particular, but merely its own persistence in general. Here the reviewer must confess his inability to follow, and while this fact can, of course, have no weight against the author's competence in psychological analysis, it may at least serve to raise the question whether it is not just here that the whole problem of absolute values is to be found.

The second part of the book deals with the *closed system* of pure values. Here the spirit is more distinctly that of absolute idealism,

although the "hang for dialectic" appears only in spots. From the fundamental act of will (which is, as we have seen, but a translation into voluntaristic terms of the category of being) "muss sich alles weitere entwickeln." "Whoever affirms the world must desire" (i. e., have an over-individual longing for) "the persistence, unity, activity, completion of the world as guarantees of the self-affirmation of experience. In each of these forms experience realizes itself as part of the true world" (p. 77). This gives the clue to further classification of values. The impersonal satisfactions of these fundamental types of impersonal longings give the fundamental realizations of pure values. Acknowledgment of the demands for persistence gives the existence-values of the outer, inner and social world. Acknowledgment of unity gives the pure joys of harmony, love, and happiness, or esthetic values. Realization of the demand for activity gives the values of development (evolution, progress, self-development). Satisfaction of the demand for completion gives the religious values. On these fundamental *Lebenswerte* are built up various derived cultural values of science, art, social organization, and metaphysics, the further elaboration of which is unnecessary since it is already familiar to the readers of Münsterberg.

If we have emphasized the abstract and ideological character of the work it is not because there is lacking richness of detail. The working out of this schematism, its application to the various concrete values of morals, art, religion, etc., is for comprehensive grasp of the manifold results of the most recent studies in these fields, no less than for sheer constructive power, in every sense a masterly effort. Since the days of the "Phenomenology of Spirit," with its concept of the self-realization of the idea, there has been nothing like this conception of a closed system of fulfillments of the over-individual will. But to recognize this is to suggest in the same breath its weakness. The procrustean temper which is inseparable from all schematism is in evidence here, and to its manifestations we shall, I fancy, be even more sensitive in the world of values than in the world of truth. For, to say nothing of the special exigencies of the system which compelled the broadening of the concept of the esthetic to include all forms of harmony, happiness, love, friendship, or the forceful sundering of ethical and social values (of morality and law), and the inadequate (not to say artificial) interpretation of economic values, the general truth remains that all these absolute values which Münsterberg sees shimmering through the world of things are abstractions. And he has not, merely by giving them a new name, escaped the penalties of taking abstractions for realities. It may be that an over-individual will in me has (without my knowing it) an over-individual longing for pure being, for mere change and becoming, for mere unities and completions, in connection with which the specific things united and the specific ideals realized are irrelevant, but these are never the objects of actual value judgment. To be recognized as values they must be suffused with individual emotion. When it is said (p. 386) that the "single thing" can never be a value, but that absolute value

out of which all the other values develop, is not, after all, too thin an abstraction upon which to found a world, and whether, to change the figure slightly, one who takes his stand upon it must not indeed have extraordinary powers of mental equilibrium to keep from falling into pure intellectualism on the one hand, or, on the other, into the irrational voluntarism of a Schopenhauer.

In contrast to the latter, Münsterberg has faith in the power of reason with its abstract constructions to get at the absolute reality of the pure will directly. "The will in its reality" is not to be experienced in any ordinary sense of the word, "is not to be explained, but its meaning is to be understood, its significance conceived, and its purposes unfolded" (p. 106). But even Münsterberg's vocabulary and verbal facility do not suffice to mark off the *wertfrei* constructions of science—*wertfrei* because involving no will—from the worth-revealing functions of the *Vernunft* which deals with the connections of values (p. 174); he must constantly use the ordinary terms for knowledge with double meanings. Does not this difficulty suggest a deeper problem? Are the logical constructions of the reason, following the connections of values, under any less disabilities than those of science? Does not all, if any, concept formation strive toward freedom from values other than those of connection, and does not reality, in this case identified with value, escape knowledge in either case? Münsterberg is not aware of this difficulty. He realizes that "when philosophical reflection recognizes the ultimate essence of the world as value, it is necessary that she retain this result in concepts and communicate it in judgments" (p. 443). After all, then, it is a question of how much is retained, and while the candid reader must recognize that his net, wide as its meshes are, has retained much, he can not help feeling that it has not caught "a closed system of pure values."

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A Short History of Philosophy. ARCH. B. D. ALEXANDER. Glasgow: James Maclehose and Sons. 1907. Pp. xxii + 601.

The only reason suggested by the author for the existence of this rather bulky volume, and the only one, perhaps, which it would be easy to find, is the scarcity of histories of philosophy written by British authors. This is by a Briton, and, more specifically, by a Scotchman, if we are to judge by a certain preference given to the work of that people. Why else should we read, "Modern philosophy may be said to begin in Germany: thence it spread to Scotland and to England" (p. 6)? And on the preceding page England is not mentioned at all in the spread of philosophy through the universities, but Scotland, again, comes next to Germany. In the discussion of systems, however, England properly, though inconsistently, takes its place at the head of the list.

As to the sources from which the work has been compiled, the author states rather significantly and very ingenuously, "I have made use of most of the larger German and French histories, and have consulted

many of the writers who treat of special periods. While acknowledging my obligations to Hegel, Erdmann, Windelband, Kuno Fischer, Falckenberg, Zeller, Ferrier, Seth, Adamson, Caird, Green, and others, I may say that in dealing with the more important writers and with many of the lesser, I have studied their own works" (p. vi). Yet in spite of this actual study of the very works themselves one feels that the secondary sources have been the main inspiration of the book.

Even in the bibliography, which takes the place of all specific references in the text, one feels this same second-hand treatment. The divisions are quite unsystematic, the sixth, "Particular Subjects," including various modern works on the philosophical sciences without reference to their historical value. There is no distinction made between the character and value of the works included, Pater being classed with Zeller, Diogenes Laertius, and Collins. The lists are extremely fragmentary and not wholly judicious; for instance, such works as Russell's "Leibniz," Joachim's "Spinoza," and Paulsen's "Kant," find no place in them, though they contain works both slighter and more technical on the same subjects. Nor are the titles without confusion: Kuno Fischer appears twice, once under the head of general works as the author of a seven-volume work, "Geschichte der Philosophie," and again under modern philosophy with his "Geschichte der neueren Philosophie." Under Berkeley the only reference given is the confusing, Fraser, "Selections" and Berkeley ("Philosophical Classics"). Under Spencer we find two works on Schopenhauer. No references to any individual ancient philosophers are given, which perhaps explains some difficulties in the interpretation of these men.

When we pass from these unpromising beginnings to the body of the work we find improvement in some respects, but not in others. The book is intended to be more than an outline and less than a comprehensive treatise; indeed, the author explicitly declines to compete with Zeller and Kuno Fischer. The difficulties already mentioned make it impossible as a text-book; it must then be judged as a free interpretation, as an attempt "to indicate the salient features rather than to give an exhaustive account of the successive systems of philosophy" and "to show the place and influence of each in the evolution of thought." Special emphasis has been placed on some of the literary representatives of philosophy and upon several of the minor movements not technically philosophical in character. The author also thinks he has brought the history quite down to our own day, but it is perhaps involved in his British point of view that, while mentioning such men as Flint, Fairbairn, MacCunn, Benjamin Kidd and Latta, he has no place for even a James or a Royce among Americans.

Both in quantity and in quality Greek philosophy fares badly, only seventy pages being assigned to the development through Aristotle, but the treatment is not such as to rouse a desire for a longer account. The author has, perhaps, read the recent literature on the period, but it seems not to have affected his interpretation. "The unity of the

Eleatics was theological rather than metaphysical. It was a system of monotheism in which the deity as *ἑκαὶ πᾶν* was identified with the universe." "Xenophanes . . . was the first to give a devotional character to thought" (pp. 17, 18). "The unlimited" of Anaximander also continues to be an abstract metaphysical concept, "a first matter, from which all form or difference had been abstracted, but which was capable of receiving all forms or determinations." "It is the first philosophic conception of God, the first attempt to strip the idea of the deity of all mythical form" (p. 12). Plato's great contribution to thought is found in the doctrine of abstract or universal ideas, "which Locke was the first to revive and which, since Kant's time, has come to be so important a factor in every system of psychology" (p. 60). This classing of Plato, Locke, Kant, and modern psychologists together is interesting, but must make some of the parties concerned somewhat apprehensive for the understanding of their views. But this passage from the author's summary of Aristotle is beyond comprehension: "In his view there are two essential elements which must be taken account of in any rational apprehension of the world. The first is the *ὑλη*, or raw material, which human activity shapes to various objects of use. The second is the 'form' which the human intelligence imparts to the material that is already given." The defect of this philosophy is that this matter is inert. "The human mind may modify and work it into various shapes, but it itself has no movement or inherent force" (p. 80). There seems here some strange mingling of a literal interpretation of Aristotle's similes with the subjectivism of the author's Hegelian sources. To ascribe the "forms" of things to the activity of human intelligence implies a complete misinterpretation of the fundamental ideas of Greek philosophy.

In modern philosophy the author is more at home and furnishes us a very readable account of its development, though presenting no fresh point of view. On the whole, however, it can hardly be said that the book offers anything which can not be had as well, if not better, in already existing works, though written by Germans or even by Americans.

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Der Utilitarismus bei Sidgwick und Spencer. A. G. SINCLAIR. Heidelberg: Carl Winter's Universitätsbuchhandlung. 1907. Pp. iv + 107.

Dr. Sinclair considers the ethical theories of Sidgwick and Spencer in a connection that is suggestive and illuminating. Both of these great moralists endeavored to reconcile the opposition between utilitarianism and intuitionism—an opposition which was regarded by English thinkers of the middle of the last century as final and irreconcilable. Both were utilitarians; but both sought so to reconstruct the traditional utilitarianism as to provide for, and do justice to, the truth contained in intuitionism. In their method of accomplishing this latter end, however, they differed widely. Spencer relied upon the conception of evolution to furnish a new scientific basis for utilitarianism, while Sidgwick rejected

the empirical method altogether, and attempted to reestablish utilitarianism on a rationalistic foundation. Spencer recognized the existence of moral intuitions in the individual and explained them as the inherited results of the experience of the race in adjusting itself to its environment, the outcome of such adjustment being the promotion of life and consequent increase of happiness. Sidgwick treated the moral intuitions as formal principles prescribed by reason to regulate the distribution of happiness. The parallel thus drawn between the ethics of Spencer and Sidgwick is in itself interesting and serves to heighten by contrast the points of difference between them. In his final criticism the author finds Spencer unsuccessful in his attempt, for he believes that the laws of biological evolution can be enlisted in the service of a utilitarian ethics on one condition only—that the development of life be proved to involve always, and in equal degree, an increase in happiness. With Sidgwick's rationalistic utilitarianism he has much more sympathy, believing that utilitarianism has no necessary connection with empirical philosophy. But he also insists that utilitarianism is not necessarily hedonistic and thinks that Sidgwick's position would have been strengthened if he had made the welfare of society rather than its happiness the supreme good. Dr. Sinclair neglects non-essentials, goes straight to the heart of his subject, and writes with lucidity and force.

H. W. WRIGHT.

LAKE FOREST COLLEGE.

JOURNALS AND NEW BOOKS

ANNALEN DER NATURPHILOSOPHIE. Band VII, erstes und zweites Heft. June, 1908. *Hat Kant Recht?* (pp. 1-28): B. WITTES. — An unappreciative analysis of Kant's arguments for the subjectivity of space and time. *Die Gebiete der absoluten und der relativen Bewegung* (pp. 29-62): J. PETZOLDT. — While absolute motion is never present in experience, it is a concept indispensable to Newton's doctrine of freely moving atoms. *Die Struktur der Organismen* (pp. 63-77): K. HOFFMANNJUN. — Driesch failed to show that in organisms exist phenomena different from crystalline growth and demanding vitalistic hypotheses; yet the mechanical interpretation is probably forever inadequate. *Die Lokalisation der Gesichtseindrücke im Sehfeld* (pp. 78-103): A. PRANDTL. — The continuum of visual space, like all continua, is built up through the possibility of identifying any point therein with adjacent points, while also differentiating it from them. *Die Subjectivität der physikalischen Erkenntnis und die psychologische Berechtigung ihrer Darstellung* (pp. 104-120): P. VOLKMANN. — German thought must define the subjective factors which prove ineradicable in certain fields of physics. *Über Kategorien* (pp. 121-153): H. HÖFFDING. — Unity and multiplicity being the limits of thought, the system of categories, based on continuity and discontinuity, tabulates *series*, of which seven kinds may be distinguished and themselves made into a series, proceeding from an extreme of dif-

ference to one of resemblance between members of a series. *Naturwissenschaftliche Forderungen zur Mittelschubreform* (pp. 153-167): W. OSTWALD. - Secondary schools at present destroy the gifts of youths of genius through excess of classical study. *Neue Bücher* (pp. 168-192): W. O.-A. Bozi, *Die Weltanschauung der Jurisprudenz*. J. Gaule, *Kritik der Erfahrung vom Leben*. E. Radl, *Geschichte der biologischen Theorien seit dem Ende des siebzehnten Jahrhunderts*. E. Haeckel, *Die Lebenswunder*. P. Beck, *Die Ekstase*. D. Mercier, *Psychologie*. F. Tönnies, *Philosophische Terminologie*, and many others.

THE PHILOSOPHICAL REVIEW. July, 1908. *The Test of Pragmatism* (pp. 365-382): JOHN GRIER HIBBEN. - The pragmatic principle when tested by its own criterion is found to be inadequate in three respects: (1) As a working hypothesis; (2) as being necessarily subordinated to other considerations; (3) as limited in its alleged creative power. The most novel of the points of this paper is the charge that the pragmatist in treating all axioms as hypothetical overlooks the fact, pointed out by B. Russell, that every hypothetical judgment rests upon an unalterable relation, the categorical truth of which can not be denied without depriving the hypothetical judgment of all meaning. *The Final Ground of Knowledge* (pp. 383-399): JOSEPH A. LEIGHTON. - "The ultimate subject of reference in valid knowledge is a universal systematic intelligence. . . Its being must at once transcend every form of existence and sustain the system of the finite in its organized totality of meanings or of truth . . . its being is the pure actuality of intuitive knowledge and the system of finite existents concerning which knowledge is valid." *German Philosophy in 1907* (pp. 400-426): OSCAR EWALD. - "Of late, physical and especially mathematical problems have gained the ascendancy to such a degree as to threaten the obscuration of general philosophical interest. Consequent upon this is the high appreciation and attention accorded to Leibniz. This attention is directed not so much to his metaphysical and cosmological ideas as to his achievements in mathematics, epistemology and the philosophy of nature. On the other hand, investigators in the special sciences—mathematicians, physicists, psychologists, biologists, historians, sociologists—are seeking a philosophical basis for their methods and aims. Consequently the cords that bind the sciences and philosophy together grow stronger and questions of the right, aim, and limitations of such union become more prominent." The article is a very valuable one. *Reviews of Books*. M. De Wulf, *Scholasticism Old and New*: WILLIAM TURNER. Charles Hubbard Judd, *Psychology*: JAMES R. ANGELL. F. Pillon, *L'année philosophique*: A. E. TAYLOR. *Notices of New Books*. *Summaries of Articles*. *Notes*.

Bruner, Frank G. *The Hearing of Primitive Peoples. An Experimental Study of the Auditory Acuity and the Upper Limit of Hearing of Whites, Indians, Filipinos, Ainu and African Pigmies*. *Archives of Psychology*, edited by R. S. Woodworth, No. 11. New York: The Science Press. 1908. Pp. iii + 113.

Carus, Paul. *Pragmatism*. Chicago: The Open Court Publishing Co. Reprinted from *The Monist* for July, 1908. Pp. 321-362.

Salvadori, G. *Il diritto nella vita e nel pensiero*. Roma: Estratto dalla *Rivista Italiana di Sociologia*, Aug. XII, Fasc. III.—Maggio-Giugno. 1908. Pp. 30.

NOTES AND NEWS

THE Kantgesellschaft proposes as the subject for the competition for the Gütler prize the question: "What are the achievements of metaphysics in Germany since Hegel and Herbart?" It is expected that the essays will be critical rather than historical in character, and that they will aim at setting forth the stable elements of the systems studied. It is expected also that the conclusions reached will be expressed in the form of a thesis at the end of the essays. The jurors to award the prize are Professors Riehl, Stumpf, and Külpe. The essays are to be written in German and will be received up to the twenty-second of April, 1910.

According to *The Nation* of September 3, "At German universities this summer 3,594 foreigners matriculated, as compared with 3,861 last winter, and 3,766 last summer. For some time there has been a steady decrease. The foreigners now number only 7.5 per cent. of the entire attendance, as contrasted with 9.2 three semesters ago. According to studies the foreigners are divided as follows: Medicine, 944; philosophy, philology, and history, 826; mathematics and natural sciences, 630; law, 426; agriculture, 304. Of these students, Berlin has 869, Munich 566, Leipzig, 504, Heidelberg 237, while Rostock has 19, Erlangen 32, and Münster only 10. Of the total number, 3,148 come from European countries, 252 from America, 179 from Asia—mostly Japanese—11 from Africa, and 4 from Australia.

PRESIDENT NICHOLAS MURRAY BUTLER, of Columbia University, began on the third of September a series of lectures on "American Civilization" at the University of Copenhagen.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

A NEW SCIENTIFIC ARGUMENT FOR IMMORTALITY

NOTHING is borne in upon one with greater vividness and force at critical moments of his career than the vital and intimate way in which the events of his own personal experience are bound up with those of his fellows. Deeper than the feeling of individual isolation, poignant as that may be, is the sense of social solidarity which at such times appears either as an insurmountable barrier or as an infinite opportunity to the realization of the self.

This recognition of the social nature of experience, like its counterpart the clear consciousness of individuality, is a relatively late product of human civilization. The two ideas properly emerge together. But European ideals of culture have been so dominated for two centuries by an isolative conception of the self, that the truth concerning the fundamentally social nature of consciousness has been overshadowed by a narrow individualism. It is only beginning to be realized, in all its implications, that a sound theory of democracy, of moral freedom, and of immortality is bound up with a true understanding of the mutual relations of the individual and society.

Along with the individuation of society there takes place a corresponding socialization of consciousness in the self—and this, like everything else in nature, is an energetic phenomenon. The so-called mental individuality of a self reflects the values of the social environment as the brain maps the progressive elaboration of sensory and motor adjustments which take place on the periphery of the organism. Personality and consciousness are not so bound up with the individual organism that other persons can not share in them, but constitute a social synthesis which, indeed, has no existence apart from individual persons, yet expresses relationships which extend beyond this. Consciousness is the center of social osmosis, developed in the individual at the points of attrition with other individuals, through which the social values find their way from self to self. It is the very essence of selfhood to be passed on to others; it is social. Therein lies its immortality, paradoxical as the statement may.

"The father who feels himself more mutilated by loss of wife and family than by loss of a limb does so, not because he is specially altruistic, but because his family is a far more vital part of his self than his limb."¹ If I have identified my self with the lives and interests of others, then my self can never die, because it is being propagated endlessly in the social chain of individuals which does not exclude but incorporates me.

This apparently denies personal and conscious survival after death. But that this is not the case will be seen by the consideration, which follows, of the relevant facts of biological and physical science. In spite of theological arguments from miracles and revelation and from the nature of God, intuitional arguments from innate ideas, ethical arguments from the nature and needs of man, idealistic arguments from the alleged priority and superiority of the spiritual, psychophysical arguments based on the apparent control of mind over matter, and arguments of the physical scientist based on the indestructibility of matter and the conservation of energy—in spite of all these arguments and others that might be mentioned, most persons find that their faith in a future life is a belief only, not a conviction. And why? Because the self for whose immortality they hope is an unreal abstraction. *The trouble is not that they believe in immortality, but that they are ascribing it to an impossible self.* The difficulty lies in the conception of personality. The self is conceived as a particularistic entity with barriers which keep it in inviolable isolation, independent of all outside influences, transcendent and self-sustaining. Its character is something sacred and incommunicable, something unique and unshareable, something even hostile in its native attitude toward the social environment. Such the self was conceived to be, at the time when the traditional doctrine of a future life was formulated. With such a conception it is impossible to state a rational theory of immortality. The water of Niagara is constantly changing, but the form of the cataract remains. The material substance of my body changes, but the continuity of my selfhood is recognizable through the changes. The individual has only a functional identity. Consciousness, *a* consciousness, *my* consciousness, like the moving picture in a kinetoscope, like a wave on the sea, like the vortex of a cyclone, has only a functional unity and continuity. Its individual *being* consists of what it persists in *doing*.

This problem is intimately connected, on the biological side, with the three facts of *birth*, *death*, and *sex*. Death is the precondition of life. The problems of degeneration and regeneration, of destruc-

¹ Mrs. Bosanquet, "The Standard of Life," p. 132.

tion and reproduction, are solved in the same breath. It is only the creature that is born that can die. Moners and amœbas are immortal, so Weismann tells us. They do not die because they never were born. They live on in new forms which result from the mere fission or division of the so-called parent cell. In gemmation, such as that seen in all plants and in many animals, we have the first step in the evolution of sex, and consequently in the evolution of death. Death enters "in connection with the alternation between two methods of reproduction and multiplication of life . . . in the course of the change from the sexual method of simple cell-division to the method of fertilization which, in time, comes to be nature's dominant method not only of preserving life, but also of giving it variety, richness, and plastic power of adaptation to different environments. With the rudiments of sex appear also the beginnings of death."² Professor Minot says: "Progress in age is accompanied by a gradually increasing specialization or organization of the parts." "It is natural to suppose that the two processes are connected. The supposition is confirmed by the observation that the less a tissue is specialized the more does it show traces of cell proliferation; while in the most highly specialized cells, no evidence of division can be found. Accordingly the conclusion is forced upon us that organization acts as an impediment to cell-division, and is, in fact, the direct cause of a loss in the power of growth, and since we may regard death as the final event, resulting from the loss of the powers of the individual, we reach, as our final conclusion, the theory that organization is the cause of natural death . . . evolved perhaps as the penalty or price paid by the higher organisms for the very possession of a higher organization."³ Weismann says that the death of the somatic cells has been acquired by natural selection because of its utility to the race, while the germ-plasm is immortal. In other words, the death of the body as a somatic individual is for the sake of the larger future life or germinal immortality.

But this need not mean annihilation. It may mean incorporation on a higher level. Life does not begin with a minimum of vitality, rise to a climax or maximum, and then decline again. The acme or climax is at the start, and life itself is a process of dying—a gradual loss of vitality. As Professor Howell says: "It is important to notice that these signs of deterioration in the machinery of life do not make their appearance first during or after the period of maturity, but begin to develop from the time of birth, or possibly before." "What we call the creative power of assimilation, which

² Smyth, "The Place of Death in Evolution," pp. 23-24.

³ Quoted by Smyth from the "Reference Handbook of the Medical Sciences," Vol. IV., p. 399.

measures the capacity of living matter to form matter like itself, decreases steadily from birth. Like a stone projected upward, the initial velocity begins to fall from the outstart. As the height to which the stone travels may be taken as a measure of the force with which it was thrown, so the length of life in any individual may be taken as the measure of the power or capacity of assimilation with which the germ of that individual started its career. . . . The curve of vitality . . . does not rise from birth, reach its maximum in the vigor of maturity, and then fall in old age, but begins to fall steadily, though not uniformly, from the beginning of life."⁴ Thus death is a process which is going on during what is popularly called the life of the individual, and the moment which is called death is but the culmination of a process which has in reality covered the whole period of life. Hence, it is literally true that "in the midst of life we are in death," or it would be truer to the facts to say that while still living death is in us. "The organism dies because it grows."

But if biological science compels us thus to interpret life in terms of death, it equally opens up *the possibility of interpreting what we call death in terms of life*. Man is as immortal as the moner. Before the life of a child commenced, it was part of its parents, and its existence now is nothing biologically but an outgrowth and a continuation of their lives. What difference whether it be the entire organism that is perpetuated by self-division, or certain selected life-bearing cells? An organism is nothing but a center or focus through which the world energy operates. The body of a man as well as of a moner undergoes complete change of its constituent elements in a lifetime, if not oftener. What matter, then, that the irrelevant somatic portion is lost in what we call death? It is occurring every day in the loss of epidermal cells which are rubbed off by friction with the environment.

The only immortality that is possible in any case is the immortality of function. Individuality has been defined as the "persistent realization of a particular type of structure." But what is this "persistent realization"? Not a persistence of the constituent elements of the tissues or cells. It is the persistence of a use, of a function, of a form or mode of behavior. A boy loses the blade from his jack-knife and puts in a new one. Yet he speaks of it as the same knife. He then loses the handle and gets a new handle. Still he speaks of it as the same knife. But suppose now that he finds the old blade and handle—what knife would that be? it has been asked. It would indeed be the old knife, his knife, the knife he had lost. But it would not be the same knife it would have been had it

⁴"Reference Handbook of the Medical Sciences," Vol. IX., Supplement, p. 207.

continuously fulfilled the function of a knife. A knife whose blade or handle is in the bottom of the sea is not a knife. The essence of "knife" is the function of cutting.

My body has changed completely since I was a boy, yet I have not forgotten things that happened when I was a boy and I claim to be the same person to whom these things happened. The scar on my arm where I was vaccinated twenty years ago still remains though the flesh has been renewed many times in the interval. What persists is the continuity of function, the form of activity, of this organism. This is what I mean by my self and it is this which is immortal. What difference does it make whether in what we call death I lose a single superficial cell of the epidermis, or in the life-long period of growth which, as we have seen, is at the same time a descent to death, I lose all these somatic cells, if meanwhile I have perpetuated my life as a continuous function into other modes of being?

By means of an application of the kinetoscope to the life of growing plants the normally slow processes of development are condensed into a few moments and we behold a grain of wheat swell, burst into life, put forth a shoot, and by stages before our very eyes develop to maturity, "first the blade, then the ear, and after that the full corn in the ear." Now suppose the life of a human being to be portrayed in like manner by telescoping into a few minutes its development from the germ to old age and death. We might conceivably then witness its transformations from the moment when the ovum is quickened into life by the sperm until by successive metamorphoses it develops into a sentient creature. We might follow it through that marvelous embryonic drama wherein it recapitulates the evolution of the race until at last it takes on the human form. We might see the helpless embryo thrust into an outer environment where it must cry and fight its way into a clear consciousness of its own individuality. Soon speech breaks forth in a gradual definition of homogeneous primary babblings. We see it struggle up to the erect stature. We behold the evolution of the hand and the coordination of sensory and motor functions for the higher uses of intelligence. Finally the child comes to full self-consciousness in some assertion of its own personality in the social whole: I am I and thou art thou. We see this human life mature, strive, think, laugh, love, win in the struggle for the highest and the best. We also see the powers wane, the limbs grow feeble, the eyes grow dim, speech falter, the health and zest of life vanish gradually as they came, as a wave rises to a crest and then sinks away into the indistinguishable expanse of the sea. We call this death.

But does death end all? What is death? The answer is found in understanding what is meant by birth. Birth is this life-long redistribution of substance or energy to serve the new purpose. Death, like birth, is a process, not an event. It is merely the negative phase of a rebirth into a higher and different sphere. When the individual wave recedes into the depths of the ocean does it lose its reality and identity? In one sense, yes. In another sense, no. It has entered into the very substance and form of myriad other waves. The seed in a sense loses its individuality when it germinates, but in another sense this is the fullest realization of the seed. The grain of wheat may not live except it die. When the mother lives her life physically and spiritually into her child she does not lose her own individuality. It is only thus that for the first time she fully realizes it. By living my life into the lives of others I do not thereby lose my selfhood; I find it. Individuality is achieved not by isolation, but by coalition; not by abstraction, but by identification. The law of the realization of the highest type of selfhood is a social law. The most complete individuality means the greatest capacity for socialization of one's consciousness. This is not self-immolation, but the very culmination of selfhood.

A man is immortal when he has won survival value in the social evolution of his own consciousness, when he has lived himself so completely into the lives of others that the interests and values of his own life are only realized by being identified with theirs. His immortality is their life. The future life is not an everlasting existence of isolated selves. It is a social achievement. "*Natural selection cares naught for the individual but only for the species, it is said. Then identify yourself with the species*" (C. L. Herrick).

So far we have been considering the biological aspects of the problem. What is called the death of individuals is not, we have seen, incompatible with their functional immortality. But this must not be confounded with the "immortality of influence" theory, to which it bears a superficial resemblance. It is an individual and personal immortality in the only sense in which these words have a defensible meaning—viz., the persistence of a definite mode of function or behavior. At this point biology has much to learn from recent physics, and the new light it throws upon the doctrine of the conservation and interconvertibility of energy.

This question of immortality ultimately involves the problem of origins—whether anything absolutely new ever comes into existence and whether anything ever really ceases to exist. We experience transformation, redistribution of matter, interconvertibility of energy, on every side. But is matter or energy ever absolutely created

or destroyed? Science answers in the negative. If we accept the conservation doctrine, then, the substance of our being can never perish. The inquiry reduces, therefore, to *the question whether and in what sense the forms or values of things are conserved*. In the death of an organism we seem to see the form destroyed while the matter or material which composed it persists in other forms. To dust it returns. But even dust has form. The same question breaks out in the so-called inorganic realm. Does redistribution there signify further degradation of form? Must there not be at last a point where form as well as substance is conserved? If we answer in the negative we are involved in the absurdity of a matter wholly without form, a substance devoid of attributes. If we admit the conservation of form we have introduced a principle in the light of which the whole problem of death and immortality must be restated.

The truth seems to be that a doctrine of absolute persistence or eternity of matter is no more intelligible than a doctrine of absolute evolution or creation. Variability of phenomena is as familiar a fact as their uniformity. We have to admit the facts both of permanence and of change. The conservation doctrine as usually stated is suicidal. It maintains that the sum total of matter or energy is constant in amount, the only changes being in the forms of things. There is quantitative identity, but qualitative diversity. But this not only is contrary to the facts; it is inherently unintelligible. There is no such thing as mere quantitative identity. It is a contradiction in terms. The only universe of which this could be true would be one with no qualitative differences within it. When I say that the amount of energy represented in the fuel has its equivalent in the heat, gases and ash left after combustion, my statement comes simply to this: that, setting aside the qualitative differences between one form of energy and another, one is the same as the other. But, apart from these very qualities, it is impossible to distinguish two portions of even the same kind of energy. They must be spatially or temporally or causally or logically discrete, and such discreteness introduces qualitative difference. It is impossible to say that two things are the same without implying a reference to their common qualities or attributes. To say that two things are quantitatively identical, strictly speaking, is to say that they are not two things at all, but one. Quantitative identity, in other words, is identity which destroys the differences; it is purely abstract or formal. The only identity which we experience in our actual world is identity in diversity, unity in variety, permanence in change. There can be no conservation or persistence of matter or energy apart from the persistence of its qualitative characters or forms. To say

that the energy of the universe is constant in amount is simply saying that the universe is what it is and can not become what now it is not—a proposition manifestly false since at this moment my present feeling is a unique fact which never before has been and which, therefore, is some slight addition to the sum total of reality. In short, quantitative identity implies persistence of personal qualities or values, and the admission of the latter anywhere in nature opens the door for its possibility everywhere.

Applying this to the question of immortality, the truth is that the organic and inorganic are interdependent terms. This distinction, like others that might be mentioned, is one which is set up within experience, not a distinction between our experience which is organic and something inorganic outside of our experience. Anything becomes organic when it enters in an intimate way into a certain type of activity. To draw a rigid line and say that the pen I hold in my hand as I write these words is inorganic while the horny tissue which I snip from my finger-nail is organic is to turn a useful abstraction into a fetish. The universe is a continuous and unitary dynamic system, and this distinction expresses a fact which is true only from the point of view from which the distinction is made. The principle of the conservation of form, if true for the inorganic world, is true for the organic world as well. A mode of activity, a value, once come into being, can not perish. It may be transformed. It must be transformed in order to endure, since the essence of being is in becoming. But this transformation can not mean its destruction, for this would mean the annihilation of reality. *Instead of the scientific doctrine of conservation militating against the possibility of immortality, when correctly construed it is its best advocate.*

There is just as good reason for regarding the redistribution of energy which takes place in the life-long dying of an organism as a transformation to a higher level as to regard it as a degradation to a lower level of being. How this may be in detail we may not at present be able to say, but it is quite possible that, as Professor Herrick has said, "other intelligences may even now be walking undisturbed through our physical bodies, living and moving in a medium of which we may be entirely unconscious as we are demonstrably unconscious of myriads of other waves and media."

The ordinary assumption of science is that the most complex organizations are the most unstable and therefore transient. But the very opposite is probably true. The more complex an organization the greater the range of its relations and consequently the less dependent is it upon any single relation for its continued existence.

The complexity of the human individual, in both his physical and his mental aspects, is the best presumptive evidence for his survival of what is called bodily death. *The strongest argument for future existence is present existence.* The very fact that we are alive now is the best evidence that we will continue to live after death. Energy is not conserved in the abstract, but in individual modes or forms. And where should this take place if not in the highest manifestations? It is as true of the universe at large, as it is of society, that it comes to itself only in its individual expressions. Reality is real and can continue to be real only as expressed in specific and concrete form.

A study of the modes of organization in nature reveals the fact that there is a progressive series of successively higher types of equilibrium. In living matter the type of coordination is more extensive and complicated than in the so-called inorganic sphere. The equilibrium is relatively more perfect and tends to be self-perpetuating. Grades or stages of consciousness are apparently expressions of still higher forms of coordination, developing within the vital series, yet in important respects suggesting a new range of phenomena. There is nothing to prove that consciousness need be restricted to association with the individual organism with which it is now connected, at least in its present form. It is conceivable that the progressive differentiation of consciousness should connect itself with other forms of energy, and that the self-perpetuating function already possessed in a measure by living organisms should be indefinitely increased by a still higher synthesis. Consciousness may be bound up with supersensible forms of matter not dissolvable at death. "Even if the cortical equilibrium is disturbed and 'the house of this tabernacle be destroyed,' the reflex of its past is perfectly held in some higher synthetic construction, so that the individual remains conscious and actively cooperates in all subsequent currents of evolution."⁵

If, as the recent intra-atomic physics seems to suggest, there are still more subtle modes of energy pervading nature than those we have recognized in our chemistry and physics; if there is a universe within the atom itself, whose forces drift unhindered through the opaque objects of the sensible world on their errands of cosmic transformation—why may it not be that these heretofore imponderable energies are the reality of what we have vaguely relegated to the occult realms of life and mind? If this should be the case, the apparently insuperable obstacle which science hitherto has opposed to a belief in immortality is removed: the seeming destruction

⁵ C. L. Herrick.

at death of that form or mode of energetic synthesis which constitutes what we call the personality of the individual. But if, as we have seen, life and death are processes and not terminal events; if death, like birth, covers the entire period of what is called life; if, in short, disorganization and decay are the essential conditions of progressive organization and individuation—is it not possible that this life-long drama of destruction is really the obverse side of a constructive synthesis of personality whose pattern may only be made out in that world of intangible and invisible forces which science is only just beginning to glimpse in the fluoroscope?

We have often seen on a country road in the summer time a little vortex of dust spinning along, maintaining an individuality of its own, although the particles that are sucked into the cyclonic whorl are being continually cast aside as the apparition glides along. Now suppose this center of vector motion to rise into the air. It vanishes from sight. But there is no reason to suppose that it loses its individuality because we can no longer see the whirling leaves and dust. Similarly in the case of the organism: because in death the vortex of equilibrating forces which gave individuality to the bones and muscles and nerves has risen into the more rarefied atmosphere of an intangible and invisible realm of nature's forces, leaving behind its fugitive freight of decaying protoplasm, is no reason for denying that the form of activity is going on building for itself such an individuality as its intrinsic conditions may determine.

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CRITICAL REALISM AND THE TIME PROBLEM. I

THE time problem always furnishes a severe test for any philosophical position. If critical realism is able to give a definite and fairly simple solution of the metaphysical difficulties associated with time, this achievement will be decidedly in its favor. My approach will be both direct and indirect. I shall attempt, first, to disclose the inability of idealism to cope with the problem and, thereupon, I shall seek to indicate the answer of critical realism.

Men have constantly felt that the conclusions of geology and of astronomy in regard to the early history of our world were contradictory to idealism. When we are naturalistic in our outlook and leave any supposed Absolute or God out of the case, the trouble we encounter, as idealists, is obvious. Granted finite experience to be reality, what can be the meaning of the assertion that the world existed before there were any experiencers? Now science does

assume a naturalistic attitude, and, moreover, the pressure of science upon philosophy is to-day very severe. Science has proven herself along all lines, and her careful investigations command respect. Common sense has always had the suspicion that the attempts made by idealism to avoid the time *impasse* have displayed dialectic ingenuity rather than intellectual sincerity. This dialectic has usually based itself either on the fallacy of experience-in-general or on a denial of time. While not questioning the sincerity of the protagonists of idealism, I believe they were often too easily satisfied.

Personal idealism is, as a rule, both franker in its recognition of difficulties and nearer the concrete facts than absolute idealism; but it is unable to give an answer to the time problem, except upon the empirically-unjustified hypothesis of experiencers very different from those we know. Besides, this position is forced to acknowledge birth and death and the facts that our experience is continually changing and is not conserved. Panpsychism is the customary refuge of personal idealism when it is confronted by origins. I have, also, seen no good treatment of time by either personal idealism or panpsychism and, therefore, may neglect further discussion of them until such is forthcoming.

There is a doctrine advanced by Professor Dewey which swings between realism and idealism. He asserts that "things are what they are experienced as." If he looks upon experience as a social possession—a position which seems to me untenable and a survival of the Hegelian impersonalism—he has still to meet both comparative psychology and geology. I must confess that the article "Reality as Experience" appears to me, and I know to many others also, an endeavor to have his cake and eat it. The prevailing reaction against the "states of consciousness" theory and the reiteration that our experience is objective, that we have tree-experiences and table-experiences, is commendable, but, if regarded as a sufficient metaphysics, is to be condemned. Once ask, Whose experience?—and personal differences, so clearly stated in psychology, land such a doctrine in pluralism. It accomplishes this by pulling on its actual idealistic connections. Just these personal differences in perception due to perspective and to physiological factors prevent, also, any return to naïve realism—at least in its old form. I have sought to do justice to the objectivity of an individual's experience by calling it a "microcosm." Each of us has book-experiences and rock-experiences. I use this barbarous language because the ordinary form is shot through with the dualism expressed in physics and in psychology. If I said experience of, or consciousness of, rocks and trees, some would immediately assert that this was irrefutable proof that

consciousness was different from its object and that naïve realism was true. We do have physical-object experiences and, also, meanings which we label atoms and ether. The physical and the psychical are functional distinctions within the "microcosm" of the individual's experience, and the individual's experience is as objective as anything can be. This use of objective must not be confused with the usage of logic, for which objective and subjective are distinctions corresponding in general with those of appearance and reality. For the above reasons, then, I shall neglect this peculiar hybrid of realism and idealism in my study of the time problem.

I shall sum up the results of this negative approach. Absolute idealism generally takes refuge in experience-in-general or in a changeless fusion of changing and empirically-unconserved experiences. Mr. Bradley declares, "If time is not unreal, I admit our absolute is a delusion" ("Appearance and Reality," p. 206). Space forbids a critical study of absolute idealism, but this I will say: that disregard of, or lack of explanation for, the patent facts of our experience is characteristic of it, and any position that acknowledges and explains these facts is, therefore, preferable. Personal idealism either lapses into panpsychism or, in order to avoid pluralism, must supplement itself with critical realism. In a recent article I have sought to show how this last movement can take place. (*Psychological Review*, July, 1908.) Naturally enough, a mystic theism may satisfy those who are not interested mainly in science and who believe in immortality, preexistence and creationism.

Critical realism, although it regards experience as a characteristic of parts of our present world, viz., the nervous system of men and animals, is not forced to assume that this was the case in the past. Qualitative changes in reality are quite possible. As I understand it, critical realism believes that the things a man handles are independent of his experience for their existence. The word "thing," like the word "nature," has two meanings, as I have recently indicated, and these must not be confused. A table-experience is a physical-thing experience and is objective, but it is not the same as the thing as an existence in dynamic continuity with my body as an existence. The double use of the word "know," in this connection, has also led to misunderstanding.

Critical realism is compelled to meet the problem of permanence and change. "The central paradox consists in the assertion that only the identical and permanent can change" (Taylor, "Elements of Metaphysics," p. 159). Why is this a paradox? It seems to me that Mr. Taylor has so defined his terms as to make them contradictory. It is no wonder, then, that they conflict. The pressure of

change in the world around us and in our lives should have led him to a critical examination of his categories, for it is better to modify concepts than to ignore facts. Can we, by taking process as the fundamental category, make the relations of permanence and change more fluid, so to speak, and overcome this abrupt *Verstandesantithese*?

Process portrays, to my mind, the dynamic character of reality. It signifies that "to be" is "to be active." By working from this category we can avoid the problem of a substratum or substance or identity which somehow possesses change or of which change is an adjective. This position is in accord with modern science at its best. A chemical reaction is no longer regarded as a mere exchange of partners, but as a complex process of establishing equilibrium in a disturbed system of energies. Rest is, also, explained by motion, not motion by rest. A complete reversal is thus made from the static view of permanence to the dynamic view of process.

But how can the demand for stability and continuance be satisfied in this apparent return to Heracliteanism? In two ways: First, conservation is an experimental fact which, unlike permanence, does not exclude change, but implies it. Second, organization supplies a relatively persistent structure to reality.

Organization is not an entity, but the form, *εἶδος*—to use an Aristotelian word—and its persistence does not involve an entity or atomic view of reality any more than the relative persistence of about the same meanings in consciousness involves the preservation of the same pulse of consciousness. Organization may be analyzed into structure and function. A clear idea of "form" can be obtained from a critical study of Aristotle. His failure completely to overcome the Platonic dualism between "ideas" and spatial things, the timeless and the temporal, permanence and change, the one and the many, matter and form, is extremely suggestive. These dualisms are really varied expressions of exactly the same dualism, and all have their roots in the embarrassment of permanence and change. Granted the timelessness and the universality of the forms, and potentiality and change must reside in matter alone. Standing upon the results of modern science and epistemology, is it possible for us so to reform his idea of form as to escape these dualisms and, also, to free it from any shadow of a logical realism? I think this result is made possible by an elimination of timelessness from form.

A few words in regard to Aristotle's epistemology may bring out more distinctly the view of "form" which I am seeking to present. According to the usual Greek theory, like could only be known by like. This led inevitably to a logical realism and, thence, to the dualisms referred to above. Now, suppose we believe that reality,

as a process, organizes itself in various ways and that we, through experimentation and reflection, involving actual handling and dissection of parts of reality, can comprehend this organization on both the structural and functional sides, this comprehension, on our part, does not imply that the organization is an entity residing in the various things. Such an hypostatization must be avoided at all hazard, for it is responsible for a great many false problems. It is this comprehension of the "form" of things, which, as I shall show, often changes very slowly or is constantly repeated in like things, that lifts knowledge above the psychological relativism of the concrete situation as such.

Accordingly, if we conceive reality as a stereometrical process more complicated in some portions than in others (this being explained by evolution), yet constantly in the moving stress of the reciprocal adaptation and self-achievement of its parts, we can gain the idea of an immanent change in no wise opposed to the conservation of energies or capacities. In Aristotelian language, we must commence with *ἐνέργεια*, and this requires nothing of the nature of an "unmoved mover" for its explanation, since there is no foil of a passive matter. Furthermore, avoiding the usual philosophical fault of extremes, we must protest against the objection that such a position lapses into the doctrine of flux. Philosophy has been ridden too long by violent contrasts like free-will and determinism, material and spiritual, mechanism and teleology, permanence and change; for it has, in being so ruled, shown a lack of balance and of feeling for fine discriminations. Let us be empirical enough to recognize that all things do not change with equal rapidity. Stones are fairly permanent in structure and function—witness the pyramids and cathedrals—so are fossils, and the mountains have stood in all ages as symbols of unchangingness. Ephemera rise and perish in a day, while man is able to maintain an equilibrium of anabolism and katabolism for some threescore years. Change is a comparative term, and to call the universe a process does not imply that the organization or "forms" of its parts vary in monotonous uniformity. A process is capable of differential organization—this is the essential significance of evolution—and these forms may have all degrees of stability from that of the so-called atom to the shifting variancy of the higher cortical areas.

Through all this development, however, there seems to me no reason to suppose that the total capacity for activity in the universe increases or decreases. This position I have expressed in the formula, that reality is a self-conserving process in which organization and the qualitative in general are related to the quantitative aspect

as the variant to the invariant. In support of this theory, I would appeal not only to the empirical tests which seem to rule out increase or decrease in subordinate systems, but, also, to logic. Increase, to my mind, involves origin; decrease involves nothingness as the ultimate result. A cone fitly symbolizes the schema, though the apex is turned in opposite directions in the two cases. Self-conservingness, on the other hand, is in harmony with a true eternity. Such a true eternity does not require the summation of an infinite series, nor does it mean simply an immense duration as is the popular view. I might add that it enables an escape from the Kantian antinomy, were it not that Russell has already shown, in his "Principles of Mathematics," that Kant had a false conception of the infinite, upon which false conception his antinomies really rest.

I have sought to prove that real time is identifiable with change; that reality, as a process, is complicated; and that the more complicated a part is, the greater the complexity and the intensity of change. Picture-thinking, combined with a confusion of experience and reality, may create a difficulty at this point. It is very hard to restrain oneself from the application of the linear idea of time to reality, but such an application might result in an infinite series due to the relation between the past and the present. This last problem could be avoided by the denial of the validity of any discontinuity between the past and the present in real time. There is, in a certain sense, an "eternal now" to reality, for reality has in itself no relation to a past or a future as such, since it is all-inclusive. Such a contrast-relation between present and past or between present and future, as I shall show in another article, has meaning only in our time construction. Any portion of reality, when we investigate it, is in a certain state or condition, and this state or form depends upon its nature and upon its place in the larger system of which it is a part. It is because a thing must be viewed as poised in the stress of dynamic relations that I have called real time—identifiable with change—stereometrical. This change is immanent; it is not a relation to a past that determines it. *Die Natur ist nur einmal da*. Reality, as a complicated process, conserves the result of past activities in itself. These may be star systems, Greek poems, or forms of government. It is what it is because it was what it was, and there is no breach of continuity.

Since, in the cosmic circulation, events like the sun's circuit are recurrent, these are taken by us as objective standards for other occurrences, especially for what have been called irreversible processes. Hence, the development in science of systems of measurement, e. g., the c.g.s. units, has an actual basis in reality. Yet, while

the earth turns on its axis, a rock changes only to an infinitesimal degree and a flower blooms and dies.

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REVIEWS AND ABSTRACTS OF LITERATURE

A Study of the Influence of Custom on the Moral Judgment. FRANK CHAPMAN SHARP. Bulletin of the University of Wisconsin, No. 236. Madison, 1908. Pp. 144.

The disciplines known as "social psychology" and "the psychology of the moral consciousness" can scarcely be said yet to have attained to a rigorous scientific method. Their inductive bases seem to consist largely in the observations of human nature made by those who write upon these topics, together with copious illustrative material culled from the newspapers and the literature of ethnography. Neither the observations nor the ethnographic evidences are likely to be altogether wrong or unimportant; and it is probable, therefore, that most serious writings in these departments of inquiry contribute to our understanding of *some* of the real and significant factors in the processes with which they are concerned. But, whether a given writer has duly noted all the significant factors, and whether he has justly estimated their relative importance and correctly apprehended their interworkings, it remains permissible to doubt. In the almost entire absence of quantitative methods and of objective means of controlling and verifying conclusions, these studies continue to depend largely upon the imagination and the felicity in observation of individual theorists. They are consequently fields in which both incomplete enumeration and excessive generalization are easy, probably not infrequent, and therefore comparatively respectable. A conspicuous and interesting recent example of such exaggeration of a single real factor in the social process seems to me to be afforded by Professor Sumner's "Folkways." Sharp has evidently felt strongly the desirability of introducing a greater use of experimental and statistical methods into these sciences; and he has accordingly employed the method of the questionnaire to test the validity, within the range covered by the investigation, of one of the most familiar and most commonly accepted generalizations about the ordinary workings of the moral judgment—which happens to be precisely the one upon which Sumner's widely-read book has laid especial emphasis. In applying such a mode of inquiry in a careful and elaborate manner to such a problem Sharp is, I suppose, doing the work of a methodological pioneer; and his monograph has in that respect an importance not dependent upon the correctness of his somewhat revolutionary conclusions. It is, indeed, as a pertinent saying of Aristotle's may remind us, not advantageous to attempt to introduce into a science a degree of exactitude of which its subject-matter is not

properly susceptible; and the maxim indicates a danger to be anticipated if similar investigations are multiplied. But the greater danger at present lies in another quarter. We ought not to be content with general impressions and popular sayings as the basis of a science, if anything more objective can really be had. Sharp is by no means forgetful that his own procedure is beset with characteristic pitfalls. To the special limitations of the method of the questionnaire he gives explicit recognition. If he does not entirely succeed in avoiding all of them, his inquiry has been, at all events, conducted with an unusually alert sense for probable objections and possible sources of error, and with great ingenuity in devising checks and correctives.

Nearly one hundred undergraduates in the University of Wisconsin, and half as many students in the "short course in agriculture"—young men from the farms, ordinarily with only a common-school education—were asked to give their opinions, and the reasons for their opinions, upon five questions in casuistry—some seven hundred answers being thus secured. The written answers were in many cases supplemented by oral interviews, in which the students were subjected to searching cross-examination about their replies and their modes of reaching their conclusions on the questions set. Upon the facts thus elicited concerning the character and the grounds of the moral judgments of these two groups of young people, Sharp bases the conclusion that the theory that such judgments, in "persons still in the naïve stage of moral consciousness," are "the product of custom and kindred forces," is untenable. These Wisconsin students—especially the agricultural students—Sharp believes to be fairly representative of that ethical *naïveté*, and to be roughly typical of "a large section of the American, and presumably, therefore, of European society." And in the cases examined he finds no evidence favorable even to the "modified forms of the custom theory," which regard the pressure of the traditional collective will as at least "one factor acting in cooperation with native standards to produce the moral world." The prevailing doctrine about the sources and the *modus operandi* of the moral judgment of the natural man is for Sharp scarcely even a half truth. "The difference in kind which many philosophers imagine to exist between their own moral judgments and those of common sense is non-existent. *In essence* the process is the same for the learned and the unlearned, for the wise man and the fool."

The argument is, at certain points, somewhat blurred by reason of the absence of a satisfactory preliminary statement of the theory attacked. A chapter is, indeed, devoted to this purpose; but it seems neither adequate nor altogether clear. There are several distinguishable (though not always carefully distinguished) contentions about the influence of custom upon morality. Some writers on the subject have been singularly careless about defining the term "custom," and about observing the obvious and fundamental distinction between customary practices—the things habitually *done* under given conditions in a community—and customary approbations or reprobations—the things habitually re-

garded as obligatory or reprehensible. Certain theorists, without sufficient warrant, assume the two to be coextensive. Even among primitive peoples, as Jhering has remarked, not every *Gewohnheit* becomes *Sitte*; not every general practise, even though it be ancient, is treated as a morally binding rule, though the one doubtless frequently tends to develop into the other. The word "custom" in ethical and sociological usage ought, preferably, to be used in the latter sense, as meaning "not merely a habit of action, but also a judgment upon action"—to employ Hobhouse's definition. It is explicitly in this correct sense that Sharp uses the word; the theory that practise-custom merely as such generates morality he dismisses (p. 10) as an absurdity not worth discussing. But it is regrettable that he has not more fully reviewed the possible meanings and variations of the doctrine that approbation-customs are the principal source of the moral judgments of the individual. What he puts forward, under the name of "the foreign-pressure theory," as the typical form of that doctrine seems to be by no means the usual or the most plausible version of it. He supposes the custom theory to maintain that "the felt pressure of the *wills* of the many upon the individual's will generates in him the conviction that the action is obligatory." "The fact that a mode of conduct is general is taken by him as evidence that the majority (or all) *wish* it to be universal" (p. 10). This seems to me to be rather a caricature than an exposition of the theory. When the influence of custom is effective upon any mind there is (according to what I take to be the natural meaning of the hypothesis in question) seldom, if ever, any such conscious setting-off of the will of others (*qua* mere will) against the individual's will. The customary judgment has become a part of the individual's own approbational reaction, the folkways are for him the only conceivable or admissible ways, when they really control his attitudes or acts. He is, albeit unconsciously, in a situation like that of the poet:

Gern wär ich Ueberlieferung los,
Und ganz original, . . .
Wenn ich nicht gar zu wunderbarlich
Selbst Ueberlieferung wäre.

The "influence of custom," in the more serious forms of the theory, means merely the potency of social suggestion and of imitation so to shape inwardly the individual's mind that its approbations and reprobations mainly conform to the prevailing and traditional ones, and do so promptly and spontaneously.

Fortunately, in spite of a misleading initial formulation, it is really upon this version of the custom theory that, in the body of the monograph, Sharp's main arguments are directed. What his investigation is chiefly meant to disprove is the supposition that common sense morality is essentially characterized by unreflective immediacy, that the ordinary moral judgment can give no reasons for itself, but "has its source in an unthinking adherence to general [*i. e.*, unvariable] rules." And the positive conclusion to which the author holds that his induction points,

is that "man is born with certain desires and approbations, just as he is born with certain other emotions, such as fear or curiosity"; that "these are the sources of certain ideals of conduct, and that men, at any rate those of the cultural stages represented by the subjects of this investigation, judge conduct to be right or wrong according as it is thought to conform or not to conform to some one of these ideals." The moral judgments examined deal with the permissibility of a disregard for contract and promise, truth, property, and life, under specified conditions; and in these cases, he holds, the students under investigation have normally more or less clearly present to their minds utilitarian or eudæmonistic grounds for their opinions concerning the rightness or wrongness of the acts in question; that is, they tend to approve, regardless both of the customary practises and the conventional code, the conduct which they, either through deliberate consideration or vague feeling, believe "will produce the greatest attainable happiness for those whom they think of as affected by it." For these Wisconsin young persons, Sharp finds, have almost always a reason for their approvals or disapprovals fairly ready to hand; and whether their answers to the casuistical issues raised be rigoristic or latitudinarian, whether they do or do not conform to the current majority-opinion, the reasons are almost always definitely eudæmonistic.

Upon some details in the method of the investigation criticisms can be made which seem to me unquestionably to limit, though they by no means destroy, the force of the evidence. 1. It can not be admitted, even in the case of our great popular universities, with their huge masses of youth of exceedingly limited cultivation, that college students who are taking courses in literature, sociology, psychology, and the like, are fair samples of the "*naïve stage*" of morality. By a rigorous judge, the evidence from the one hundred regular undergraduates might not unfairly be ruled out of court. 2. The agricultural students are doubtless more typical. But even they represent chiefly a modern, Protestant, sermon-hearing, newspaper-reading class; and they would be peculiarly unresponsive to the customs of their tribe if they had *not* acquired some capacity for reflection upon casuistical difficulties, some acquaintance with general principles, and a tendency, in doubtful cases, to consider the consequences of acts. The New Testament alone is a strong influence making for a sort of antinomianism—for the disregard of fixed rules and the resort to broad, and therefore relatively flexible, moral criteria; and the populist type of political doctrine is another such influence. It is not surprising, therefore, that these young men show some tendencies to a sort of latitudinarianism upon certain points, and can more or less readily correlate their specific moral judgments with general principles of the altruistic sort. Sharp's minute and elaborate inquiry was scarcely requisite to establish the existence of such tendencies in such a modern population; but it undeniably indicates that they have gone farther than most persons would have supposed. It is, certainly, somewhat surprising to find that more than half of these farmer boys hold it right for a physician to kill a patient incurably ill with a painful disease, who is

19. The number of agricultural students is 50. 20. The number of agricultural students is 50. One could wish the numerical range of the investigation especially since these 50 are secured by a process of "progressive and able" elimination from 211 such students before the questions were put, of which total 93 were unable or unwilling to answer the questions at all. 4. From the written answers of the 50, reasons for their replies were "almost totally absent" (p. 63). The reasons were secured only through oral interviews and cross-questioning, in which the method brought out inconsistencies in the answers of the students, suggested reasons which *might* have underlain the answers, and the like. In spite of Sharp's evident effort to make this simply a means for getting at the otherwise hidden inwardness of these not really self-expressive minds, the method is not one calculated to convince the severely skeptical. There were too many artificial factors in the situation and too many possibilities (which not even such scrupulous persons that used here could wholly eliminate) for suggestion from questioner to student to make one thoroughly confident that the final results of such an interview give a transparent picture of the manner in which the mind under investigation *would* work under the ordinary conditions in which moral judgments are passed. 5. The casuistical cases upon which opinions were called for were all especially difficult cases; and they were nearly all of them instances in which obedience to some imperative, commonly regarded as binding under ordinary circumstances, would lead either to great and useless suffering, or to the violation of some other equally binding imperative. Accepting, then, Sharp's statistical results even as they stand, they prove only that in this class of cases a considerable proportion of persons of the social type investigated tend to reach their moral judgments by means of some reflection upon the consequences of the acts contemplated. These results, however, do not at all prove that, in the great mass of cases, where the current moral ideas are less palpably at variance among themselves, the source of the moral approbations and reprobations of the individual is not to be found in "custom." If the questions had concerned such matters as the moral admissibility of polygamy, incest, suicide, divorce, profanity, Sabbath-breaking, even smoking by women, one suspects the results would have shown a good deal more "immediacy" and a good deal less of reasoning upon eudæmonistic grounds. On the matter of polygamy, agricultural students in Utah would very likely hold different opinions from those in Wisconsin. This could hardly be shown to be due to inferior native skill in the use of the calculus of values. The well-brought-up Turk, regarding polygamy as praiseworthy, would look with horror upon the potations of Milwaukee. Has custom nothing to do with these notorious and innumerable discrepancies between the codes of different communities? In all these cases I doubt not that reasons, of a sort, would be forthcoming, if insistently pressed for. In civilized societies conventional reasons or reason-suggesting epithets tend to gather round the recognized imperatives, just as etiological myths gather round the ritual

observances of nearly all peoples. But there is as little ground for assuming the reasons to be the real source and effective motive of the approbations they reenforce as for assuming the myths to be the source of the rites they ostensibly explain. The acceptance of the reasons is often itself simply a part of the custom, and nowise proves that the influence of custom is not the determining influence in the formation of the judgment.

To conclude, then: Sharp seems to me to have failed to justify his more sweeping negations of the custom theory. But against the excesses of that theory he has supplied a valuable corrective. In the group examined he has shown, not at all the absence of the custom factor, but undoubtedly the presence, under certain conditions, of other factors in the moral judgments of the natural man. And he has rightly pointed out an intrinsic probability—too little heeded by some writers on the omnipotence of custom—that at all stages of culture, especially when new situations or casuistical embarrassments have arisen, there has been a play of the individual's practical judgment and personal sympathies, supplementing custom, occasionally overriding it, and often gradually transforming it.

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Systematische Philosophie. W. DILTHEY, A. RIEHL, W. WUNDT, W. OSTWALD, H. EBBINGHAUS, R. EUCKEN, FR. PAULSEN, W. MÜNCH, TH. LIPPS. *Die Cultur der Gegenwart*, I., 6. Leipzig and Berlin: B. G. Teubner. 1907. Pp. viii + 432.

It is very difficult for a reviewer to do justice to a work of this kind. A summary that would be of any value would be too long to find a place in any periodical. The articles, too, because of their popular appeal are either so far free from controversial or uncertain statements, or are so privileged by the fact that they are intended to be popular, that criticism could only be offered as to the wisdom of including or excluding matter—a form of criticism that is bound to move on uncertain ground.

One can not accuse the editor of favoring any one school, for the more controversial general problems are treated three times over by men of different schools under titles that are apparently very different, but which really give opportunity for discussion of the same matter. Dilthey, Wundt, and Paulsen, each has a chance to outline his system of metaphysics. Dilthey under the title "The Nature of Philosophy," Wundt in an article entitled "Metaphysics," and Paulsen under the head of "The Future of Philosophy." Ostwald's "Naturphilosophie" arrives at conclusions on common matters that are characteristically different from those of Wundt and Dilthey. Each sees the end of his discipline in the development of a *Weltanschauung*, and each recognizes the close relation between science and philosophy or metaphysics. Ostwald would extend science to cover the problems of metaphysics, while the two other philosophers would subordinate science to philosophy, and coordinate its

results with those of other realms of thought before accepting them as adequate to the entire problem. Wundt takes occasion in this connection to read Haeckel, Ostwald, and Mach a lesson on the presumptiveness of the scientist, and insists that while they think they are keeping within the bounds of science they are really building up metaphysical systems with none of the conservatism of the present-day metaphysician. "The greatest skeptics have been the greatest mystics," is his final sentence in dismissing the school.

The better defined disciplines follow the current lines of treatment. Riehl gives a summary of the elements of inductive and deductive logic in the traditional form, and emphasizes the importance of methodology of the sciences for the modern treatment. In the systematic part of his treatise on epistemology he opposes the positivistic and the critical schools, and attempts to harmonize the two tendencies in the principle that form and content are both ideas, and must, therefore, be capable of being connected with the unity of thought. Nothing can enter our experience which does not in perception correspond to the unity of our thought. Empiricism and criticism must, therefore, be one.

Ebbinghaus is at his usual high level in the brief summary of psychology. After the elementary mental states have been considered he gives a relatively large part of his space to a discussion of belief, art, and religion. All three develop from the attempt to escape the disagreeable consequences of human foresight. With the development of intelligence and anticipation there are found to be many gaps in knowledge and much that must be left to uncertainty. Beliefs in general and their particular developments in religion and art represent man's endeavor to palliate fears and fortify hope as he contemplates the future.

"The Philosophy of History" by Eucken, "Ethics" by Paulsen and "Pedagogy" by Münch are résumés of the subject from the particular standpoints of the author. The article on "Esthetics," by Lipps, gives a clear statement of his theory of *Einfühlung* and should be valuable as a summary of his views, which are put more briefly and clearly here than is his wont.

As a whole the work should prove valuable as a popular exposition of several of the important German contemporary philosophical systems.

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Modern Classical Philosophers. Selections Illustrating Modern Philosophy from Bruno to Spencer. BENJAMIN RAND. Boston and New York: Houghton, Mifflin and Company. 1908. Pp. xiii + 740.

In the first place, this volume is a commendable example of good book-making. In seven hundred and forty pages (including a useful index) the publishers have given the editor's selections covering modern philosophy in a form at once handsome and serviceable. The print is clear, the paper is good, the book, though of necessity extended, is neither too large nor too heavy for convenient handling. The price, moreover,

is far from excessive. In fine, intended for a text and reference book, the printed volume in all external ways admirably fulfils its purpose.

The compiler, Dr. Rand, has exercised similar judgment and control. This is no typical volume of extracts, immaturely chosen and set in a frame of valueless notes, with which (at least in the case of single philosophers) we are all unhappily familiar. The present set of selections has been maturely and deliberately formed; the compiler, and those who have labored with him, have erred rather by restraint than by way of profusion in their remarks illustrative of the various texts. Indeed, if the trained reader is grateful for the absence of the time-worn "apparatus," the student or beginner might have profited by more of introductory or explanatory comments.

Thirdly, the list of works reproduced from the original texts or in translation will in general approve itself to those who are engaged in the task of philosophical instruction, and who have felt the need for some such book for reading in connection with their courses. In particular, teachers of philosophy will welcome those of Dr. Rand's extracts which are not so easily, or not at all, attainable in English elsewhere. In this connection, mention may be made of the opening version of the second dialogue from Bruno's "*Della causa, principio, ed uno*," by Professor and Mrs. Royce, and the translations from Fichte and Schelling by Dr. Rand himself. The thirty pages from Condillac's "*Traité des sensations*," on the contrary, might have been spared, especially as the earlier sensationalism of Hobbes had been accorded ample representation in the excerpts from "*Leviathan*."

This suggestion brings up the crucial question for both the compiler and the critic of a work like the one before us. In general, as has been said, Dr. Rand's choices will be cordially approved. And as he justly remarks in his preface (p. vii): "No two authorities will entirely agree as to the authors to be chosen." But good as his book is, it might be bettered in the later editions which are certain to be called for. Under Locke room might well be made for the substance of Chapters I.-II. of Book IV. of the "*Essay*" as well as of Chapters III.-IV.; if Berkeley's "*Principles*" were to be quoted *in extenso*, it is difficult to justify the omission of the classical "Introduction" to the work; we miss the fifth section of Hume's "*Enquiry*," though reasons exist for its absence; some, if not many, would have preferred less, comparatively, of Hegel's "*Logik*" and more of the "*Phaenomenologie*," and it is to be regretted that space could not have been found for some of the applications of the master's evolutionary idealism, *e. g.*, for excerpts from the "*Einleitung*" to the "*Philosophie der Geschichte*"; the fragment from Spencer's "*First Principles*," Part I., is quite inadequate, if the doctrine of the unknowable was to be included at all; the ending of the work with Spencer leaves later thought, in particular the reaction against naturalism, unrepresented, whereas selections from Lotze, say from the ninth book of the "*Microcosmos*," would worthily have rounded out the whole.

But these are minor points concerning which opinions are sure to

differ. As it stands, the work is heartily to be recommended to instructors and students alike. And besides fulfilling its primary object as a book for reading and reference, may it also, as Dr. Rand hopes, "prove a stimulus . . . for the perusal of the complete works of the philosophers" themselves (p. vii).

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Les femmes homicides. (Avec 40 planches hors texte contenant 161 figures, et 8 tableaux anthropométriques.) PAULINE TARNOWSKY. Paris: Félix Alcan. 1908. Pp. viii + 591.

A detailed account of 160 women murderers, largely from central Russia, compared with 150 normal average peasant women of the same region, forms the essence of this stately volume.

The author gives first a careful account of the methods employed in the anthropometric and functional examination, then discusses the physical stigmata, the heredity (with a historical sketch of the problem), the application of biology in the study of the criminal, and the principles of grouping the cases according to motives (passions—cupidity and greed, maternal instinct, sexual love, jealousy, vengeance, repeated outrages, hatred and cruelty; obtusion of the moral sense; the genetic sense and its deviations; accidental homicides, and homicides influenced by nervous and mental disorders). The individual records give the measurements, which reappear in the eight tables which sum up the results, an account of the crime, and, in many cases, a good family and personal history; but, in the main, there is scanty tendency to a formal analysis of the psychological make-up.

A certain number are normal types and, evidently, murderers by chance; a few were insane; but the larger number show at least mental disequilibrium of varying degree and form, with numerous mental and physical stigmata of degeneracy and unfavorable heredity. In the eleventh chapter the author compares the averages of a few measurements of the head in the 160 murderesses, in non-criminal illiterate and in well-educated non-criminal women. Other tables add details for different types of criminals as well. Similarly, the distribution of the color of hair and eyes and especially that of the stigmata of degeneracy are rendered in such comparative tables, also the time of establishment of the menses, the relative extent of the visual fields, the sensations of taste, smell, hearing, pain, localization and extent of the knee-jerk. However little connection one may see in the relation of the individual finding to the criminality, the tables are decidedly striking, as are also the 156 pictures of these women.

The data, conveniently arranged on p. 515 and comparing 160 murderesses, 158 illiterate and 50 educated non-criminal women, 100 thieves and 216 prostitutes, leave very little doubt as to the constitutional inferiority of a large number of the homicidal women. It would be difficult to bring together a more substantial foundation for the final appeal for reform of the methods of dealing with the criminal.

From a methodological view-point and as a substantial contribution of facts, the volume is a great help for concrete orientation in this field.

Through some mishap, the well-known New York Institution is consistently referred to as the Elvira Reformatory. There is a bibliography, but no alphabetic index. The clearness of exposition makes this omission somewhat excusable.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. August, 1908. . *La volonté de conscience comme base philosophique de la morale* (pp. 113—137): A. FOUILLÉE. — It is natural to attach morality to the most radical principle in the psychic life. An ethics based on "*idées forces*" synthesizes science and philosophy from a practical and from a scientific point of view. *La formation de l'idéal* (pp. 138—159): M. MILLIoud. — A study of the conditions under which ideals arise, when they are efficacious, and what effects they lead to when established. *La guerre et la paix au point de vue philosophique* (pp. 160—172): CH. RICHET. — A defense of the idea of peace as valid by both severe logic and rigorous ethics. *Notes et discussions: Mystique, science et magie*: PROBST-BIRABEN. *Analyses et comptes rendus*: Pollack, *Die philosophischen Grundlagen der Wissenschaftlichen Forschung*: DR. S. JANKELEVITCH. Revault d' Allonnes, *Les inclinations: leur rôle dans la psychologie des sentiments*: TH. RIBOT. J.-P. NAYRAC, *La Fontaine*: L. ARRÉAT. L. William Stern, *Person und Sache*: LÉON POITEVIN. Bayet, *L'idée de bien*: FR. PAULHAN. C. Radulescu-Motru, *Puterea sufleteasca*: G. ASLAN. C. Bouglé, *Le solidarisme*: G.-L. DUPRAT. *Sociological Papers*, Vol. III: DR. S. JANKELEVITCH. Rudolph Goldscheid, *Entwicklungswerttheorie*: A. LANDRY. I. Woodbridge Riley, *American Philosophy*: G. COMPAYRÉ. C. Coignet, *L'évolution de protestantisme français au XIX^e siècle*: FIRMIN ROZ. Severin Aicher, *Kants Begriff der Erkenntniss verglichen mit dem des Aristoteles*: C. HUIT. *Revue des périodiques étrangers*.

Clark, L. Pierce, and Diefendorf, A. ROSS. *Neurological and Mental Diagnosis*. New York: The Macmillan Co. 1908. Pp. x + 188. \$1.25 net.

Scott, Colin A. *Social Education*. Boston: Ginn & Co. 1908. Pp. xi + 300.

Titchener, Edward Bradford. *The Psychology of Feeling and Attention*. New York: The Macmillan Co. 1908. Pp. vii + 404. \$1.40 net.

Wenley, R. M. *The Movement towards "Physiological" Psychology*. Reprinted from *The Popular Science Monthly*, Vol. LXXII., June, 1908, and Vol. LXXIII., July, August, and September, 1908.

NOTES AND NEWS

PROFESSOR E. A. KIRKPATRICK has called our attention to the erroneous printing of his name on page 477 of the issue of the JOURNAL for August 27. We desire to express our regrets for the error.

MR. FRANCIS DARWIN's presidential address before the Dublin meeting of the British Association for the Advancement of Science is printed in full in the issue of *Nature* for September 3. It is a defense of the mnemonic conception of evolution. We take the following extracts from the address as illustrative of Mr. Darwin's views: "I want to give you a general idea of how the changes going on in the environment act as stimuli and compel plants to execute certain movements. Then I shall show that what is true of those temporary changes of shape we describe as movements is also true of the permanent alterations known as morphological. I shall insist that, if the study of movement includes the problem of stimulus and reaction, morphological change must be investigated from the same point of view. In fact, that these two departments of inquiry must be classed together, and this, as we shall see, has some important results—namely, that the dim beginnings of habit or unconscious memory that we find in the movements of plants and animals must find a place in morphology; and inasmuch as a striking instance of correlated morphological changes is to be found in the development of the adult from the ovum, I shall take this ontogenetic series and attempt to show you that here also something equivalent to memory or habit reigns. Many attempts have been made to connect in this way the phenomena of memory and inheritance, and I shall ask you to listen to one more such attempt, even though I am forced to appear as a champion of what some of you consider a lost cause—the doctrine of the inheritance of acquired characters. . . . Semon in his interesting book, 'Die Mneme,' has used the word *Engram* for the trace or record of a stimulus left on the organism. In this sense we may say that the internal conditions of Pfeffer, the physiological states of Jennings, and the internal conditions of Klebs are, broadly speaking, *Engrams*. The authors of these theories may perhaps object to this sweeping statement, but I venture to think it is broadly true. The fact that in some cases we recognize the chemical or physical character of the internal conditions does not by any means prevent our ascribing a *mnemic* memory-like character to them, since they remain causal agencies built up by external conditions which have, or may have, ceased to exist. Memory will be none the less memory when we know something of the chemistry and physics of its neural concomitant. . . . There is likely to be another objection to my assumption that a simple form of associated action occurs in plants—namely, that association implies consciousness. It is impossible to know whether or not plants are conscious; but it is consistent with the doctrine of continuity that in all living things there is something psychic, and if we accept this point of view we must believe that in plants there exists a faint copy of what we know as consciousness in ourselves. I am told by

psychologists that I must define my point of view. I am accused of occupying that unscientific position known as 'sitting on the fence.' It is said that, like other biologists, I try to pick out what suits my purpose from two opposite schools of thought—the psychological and the physiological. What I claim is that, as regards reaction to environment, a plant and a man must be placed in the same great class, in spite of the obvious fact that as regards complexity of behavior the difference between them is enormous. I am not a psychologist, and I am not bound to give an opinion as to how far the occurrence of definite actions in response to stimulus is a physiological and how far a psychological problem. I am told that I have no right to assume the neural series of changes to be the cause of the psychological series, though I am allowed to say that neural changes are the universal concomitants of psychological change. This seems to me, in my ignorance, an unsatisfactory position. I find myself obliged to believe that the mnemonic quality in all living things (which is proved to exist by direct experiment) must depend on the physical changes in protoplasm, and that it is therefore permissible to use these changes as a notation in which the phenomena of habit may be expressed. . . . If the mnemonic theory is compared with Weismann's views it is clear that it is strong precisely where these are weakest—namely, in giving a coherent theory of the rhythm of development. It also bears comparison with all theories in which the conception of determinants occurs. Why should we make elaborate theories of hypothetical determinants to account for the potentialities lying hidden in the germ-cell, and neglect the only determinants of the existence of which we have positive knowledge (though we do not know their precise nature)? We know positively that by making a dog sit up and then giving him a biscuit we build up something in his brain in consequence of which a biscuit becomes the stimulus to the act of sitting. The mnemonic theory assumes that the determinants of morphological change are of the same type as the structural alteration wrought in the dog's brain. . . . We may fix our eyes on phylogeny and regard the living world as a great chain of forms, each of which has learned something of which its predecessors were ignorant; or we may attend rather to ontogeny, where the lessons learned become in part automatic. But we must remember that the distinction between phylogeny and ontogeny is an artificial one, and that routine and acquisition are blended in life. The great engine of natural selection is taunted nowadays, as it was fifty years ago, with being merely a negative power. I venture to think that the mnemonic hypothesis of evolution makes the positive value of natural selection more obvious. If evolution is a process of drilling organisms into habits, the elimination of those that can not learn is an integral part of the process, and is no less real because it is carried out by a self-acting system. It is surely a positive gain to the harmony of the universe that the discordant strings should break. But natural selection does more than this; and just as a trainer insists on his performing dogs accommodating themselves to conditions of increasing complexity, so does natural selection pass on its pupils from one set of

conditions to other and more elaborate tests, insisting that they shall endlessly repeat what they have learned and forcing them to learn something new. Natural selection attains in a blind, mechanical way the ends gained by a human breeder; and by an extension of the same metaphor it may be said to have the power of a trainer—of an automatic master with endless patience and all time at his disposal."

WE take the following comment on specialization in science from a notice in *The Athenæum* of Louis Houllévigüe's "L'évolution des sciences": "Admirable as is his reasoning in this final chapter, we fear that the ideal there set forth is realizable only in Utopia, for the most marked feature of modern science (in the more restricted and popular sense of the word) is the resoluteness with which it applies itself to the bettering of the conditions of everyday life. But this can only be done, so to speak, piecemeal, and by the most careful attention to details; and it is this fact, rather than the perverseness of its professors, which has brought about, as it seems to us, the over-specialization which, as friends of abstract learning, we deplore."

WE learn that Mr. T. M. Johnson, of Osceola, Mo., is collecting materials for a book on the writings of Thomas Taylor the Platonist. He will be glad to hear from those who have any of his works with manuscript notes or memoranda in his handwriting, or any of his letters or manuscripts.

THE *Revue de métaphysique et de morale* for September is devoted to a series of papers dealing with contemporary philosophy in countries other than France. Professor Frank Thilly, of Cornell University, has written the paper on philosophy in the United States of America. American philosophy is indebted to him for a very thorough and unbiased presentation of its current tendencies. The other contributions to the *Revue* are by J. Benrubi, J. S. Mackenzie, G. Amendola, H. Höffding, F. G. Calderon, who write of philosophy in Germany, England, Italy, Scandinavia, and South America.

THE death is announced, in his sixty-third year, of C. A. J. Fritz Schultze, professor of philosophy and pedagogics in the Technical High School of Dresden. His works include "Geschichte der Philosophie der Renaissance," "Stammbuch der Philosophie," "Philosophie der Naturwissenschaft," "Kant und Darwin," and "Psychologie der Tiere und Pflanzen."

PROFESSOR R. M. WENLEY concludes in the *Popular Science Monthly* for September his articles on "The Movement towards 'Physiological' Psychology." The final paper is chiefly an exposition of Professor Wundt's views.

M. ANTOINE HENRI BECQUEREL, the eminent French physicist, died at the age of fifty-six years, on August 25, at Croisic, in Brittany. *Nature* for September 3 contains an account of his contributions to science.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

TIME, CHANGE, AND TIME-TRANSCENDENCE

THE consciousness of change is the root of our time-experience. The perception of time is that of order in change, simultaneity in succession, and, hence, involves the notion of a relatively identical or permanent element amidst changes. Undoubtedly the origin of this notion of a permanent element of change is to be found in the self's feeling of its own identity and continuity through its organic rhythms. From the first crude consciousness of organic rhythms up to the abstract consciousness of secular time, time is simply a marker of order and continuity in change, and the consciousness thereof enlarges with the growth of experience and reflection. It is of utmost importance for the self's practical control of the outer world that there shall be some sort of coherence and continuity in the succession of its experiences. The time-concept supplies the instrument for tracing and formulating a rational causal order in change. If the order or law of change in a given direction can be formulated, the self can adjust itself to this order. The experience of change thus gets projected into a time-consciousness, which is objectively figured and measured as a continuous and fixed order. The pure concept of time is the abstraction of this order from the changing contents of consciousness.

Every idea of time, from the crudest to the most abstract, has its roots in the present of experience. No past has actuality or meaning which is not involved in the living present. Before considering the metaphysical nature of time it is necessary to determine the meaning of the present. A present can not strictly be defined. It eludes the very conditions of strict definition, since, as soon as one takes the first step towards apprehending it in thought, it has already become past. We are all sure of the present in which we live, as we are sure of our own identity. The "present" offers the same obstacles to definition that the living self of our immediate experience offers. In fact, the immediate consciousness of the present and the immediate sense of selfhood are the same thing, viewed from different standpoints. Ever flowing on or "becoming" the living self is the experienced interpenetration of various quali-

tatively different states, of a progress with heterogeneous aspects and a variety of stages, in which "past," "present," and "future" are only relatively and indefinitely distinguishable.

And yet, we are told, the present has always specific *duration*. It is filled with a definite content of feelings, ideas, movements of attention, etc. Its maximal and minimal duration can be measured. The individual mind can grasp just so many sounds or words in one act. There are individual variations of this power, and, so, there is, for each one of us, a certain "time span" or "tempo," *i. e.*, certain fairly definite and measurable limits of duration, within which our consciousness fills up, with a limited number of experiences, what seems at first blush an indivisible and instantaneous "now."

We can conceive of other beings, possessing minuter or coarser time-perceptions than ourselves; as having, in relation to an objective standard of measurement, much longer or shorter "presents" than we have, *i. e.*, as living in different "tempos." The living present, which we distinguish from past and future, but which actually has duration, and, hence, includes past and future in its own apparent continuity, has been called the "specious" present, and this specious present does not, as immediately experienced, contain any sense of sharp delimitation before and after. It "becomes," but does not begin or end, and its duration is measured by the aid of retrospection and in spatial terms. As soon as I undertake to determine the content and extent of my "present," the present to be so determined has already become past. The actual present is now the incipient purpose and plan of measuring the fleeing specious present.

The actually experienced present, then, need contain no definite awareness of duration. And yet, the present can not be a motionless point or a dimensionless line transverse to the direction of change; for what then becomes of past and future, and how can we speak, even retrospectively, of the present as having concrete reality? If the present have not breadth, what becomes of time and change? In truth, in the actual present the self transcends change or mutually external time-lapses, through the *act of synthesis* by which it grasps a succession as one and continuous. The simultaneity, or so-called timelessness of a self, consists in this power of continuous synthesis. When I begin to recite a line or stanza of poetry there is actually present in my consciousness, by way of feeling, the continuous movement of meaning of the line, or, perhaps, of the entire stanza, while I am actually saying a single syllable. Or I sit down to write a discussion which I have previously thought out, and, as I proceed, the argument develops out of the nascent synthetic

feeling that I have, of the discussion in its entirety. The actual present, then, is constituted by a progressing synthetic unity of self-activity involving continuity of interest and meaning.

And the "past" is a reconstruction or revival, determined by the synthetic continuity of interest in the living flow of actual experience. A tiresome experience, such as listening to a bore, which seemed endless while we were undergoing it, shrinks to almost nothing in our recollection. An experience unified and controlled by a strong emotional interest, may be time-transcending, *i. e.*, devoid of immediate consciousness of succession and of all explicit reference to past and future, because its successive features (successive for retrospective analysis) are fused together or interpenetrate in one whole of emotional tension, "*Dem Glücklichen schlägt keine Stunde.*" In recollection, on the other hand, such an experience bulks large because of its unity or vital interpenetration with the actual present.

The actual basis of the past's reality is the living "now" of experience. The past is a reconstruction made by a thinking self. The possibility of this reconstruction and, by consequence, the present reality of the past depends on a filiation of interest and meaning in and with the present synthetic activity of a self. In this time-spanning synthesis past and present are united, and, without it, the past would not now be real. The basis of all reconstruction of a past period, *e. g.*, in human history, in geology, or in the history of the solar system, is always an inference based on an assumed analogy or continuity of mental, moral, or physical processes then and now. We begin with certain present data, manuscripts, social ideas, or rock strata, and we interpret these in terms of a continuity of process. The Periclean age, the Archæan epoch, the primitive star mist, are all constructed on the assumption of persistence of process or continuity of movement in the affairs of men, the formation of earth structure, the chemical and physical processes of the solar system.

The objection that this view denies that the past had any independent reality is due to a confusion of two very different assertions, *viz.*, "The past *was* real on its own account," and "the past *is now* real"; the first assertion is an inference from the second. I deny that Cæsar is now crossing the Rubicon; I deny that I am living in the Archæan epoch. I do not deny that Cæsar did cross the Rubicon or that there was an Archæan epoch; but I hold that we can only make these assertions now in regard to past events through the interpretation of some event, viewed perspectively, in relation to some element of present experience, be it book, or idea, or rock, and by the assumption of a continuity of process; or, in

other words, by projecting, in terms of analogy, certain features of present experience into their antecedents, so establishing a continuity of process. Traces of the supposed antecedents must be effectively present and identifiable now in order to justify the assumption that they really were antecedents and that present experiences really are consequents. A specific past was real because something persists now which is explicable in terms of a particular form of continuity; but this continuity requires synthesis, without which there is no recognizable succession.

In the same way the future depends on the present. The future is the present forward-reaching. It is the incipient tension of developing, and as yet unsatisfied, interests, desires, meanings. The musical symphony, the operative phrase, the present aching yearning of love, the present imperative stress of ambition, emotionally demand their own completion. For the failing old man in his dotage there is literally no future on this side of the grave. For him the past and present intertwine and are all, unless the urge of religious feeling quickens him to project himself into a life beyond the grave. For the young man, on the contrary, life is big to infinity because of his strong interests and desires.

Our notion of time, then, is the empty form into which we project from the living present the continuity of our interests, aims and values. Actual time can have no more continuity than human ideas and purposes and the ideas and purpose of other psychical beings may have. Time is the shadow cast by the unsatisfied will of man across the world of becoming. It is the mark of the incomplete moving towards completion. And the so-called *direction* of time's flow is determined by the tensions of human interest and aim. Hence, the movement of history and biography appears as an irreversible series of qualitatively individual acts and never-to-be-repeated events, in contrast with the reversible character of a purely mechanical system. The historical development of mankind and of the world, as of an individual, constitutes series of qualitatively discrete or unique occurrences. The continuity of any historical whole, *e. g.*, the life of a great man, the history of England or of Christianity, is dependent on a community of meanings and values which interpenetrate the succession of events and constitute them a whole. Every real history is constituted by a spiritual synthesis. Hence the so-called absolute continuity of time's flow is a misleading metaphor. In so far as the movement of reality is discrete, actual time is discrete and heterogeneous. There are as many perceptual time-series as there are striving and developing selves. Perceptual time as the form of experienced becoming must be, so far, at least, as imperfect beings are concerned, coincident in extent with change.

Perceptual time is adjectival. Our actual perceptions have a temporal aspect, but we do not perceive time-in-itself. Whatever reality time seems to have, over and above the direct consciousness of transition in becoming, is due to its identification with a common measure of change. Time gets pictured as the container, of which change in orderly succession is the content, *i. e.*, as a flowing matrix of change. In perceiving and placing events in the time-order, the self projects and sees in perspective, from the "now" of immediate experience, its remembered experiences of change, by generalizing the direction and the rise and fall in tension of its own strivings and satisfactions and ordering them in a sort of spatial "form" or vessel.

The "form," "concept," or "notion" of measurable time is, like that of space, from which, indeed, it is taken, an empty homogeneity of movement. "Pure" time is figured as an indefinitely moving point describing a continuous straight line, or as a circle with infinite radius, or as an unceasing rhythm. The "change" of actual experience, on the other hand, is the becoming or development of qualitative differences in experiences, of a manifold variety of tendencies that are organically related in manifold ways in the synthesizing movement of a self's life. Every "now" is a discrete moment or finite element in a process of becoming, whose unity consists in the synthetic interpenetration of these discrete moments. We reflectively think our successive experiences as connected and bound together by the persisting continuity or systematic interrelations of our interests, purposes, and meanings; and the time of these experiences is synoptically conceived as constituting one continuous whole.

In this synoptic, synthetic activity the self transcends its momentary existential states. Here it reaches beyond the contents of its own immediate experience. And, by reflection on this transcendence of the given and the changing, through which transcendence the changing gets ordered and dated, the self discovers that it can go on indefinitely adding together section after section of perceptual time-experience, that it can indefinitely conceive finite fleeting "nows" as strung together; it can, indefinitely, proceed with the process of analysis or discretion and of synthesis. So arises the ordinary notion of "infinite" time. This is but an abstract image (commonly visual-motor in origin) of the self's consciousness of the *potential infinity* of its own power of thinking. In the case of time, as of space, the real infinity involved is that of the analytic-synthetic activity of thinking. The time of actual experience is finite. "Infinite" time is the abstract representation of the mind's power of conceptual analysis and synthesis of change-experiences.

By virtue of this synoptic function the mind transcends the finite discreteness of actual succession and spans time-series. The true infinite in this regard is a time-spanning function of the thinking self. That the finite human self experiences and affirms *intrinsic values*, the worth of which seems independent of the conditions of their genesis, *i. e.*, are *timeless* values, may be admitted. But these deeds and experiences are not endless, but time-transcending. Their values are not constituted by the indefinite extension of any number of temporal psychical events.

So-called infinite time has no independent reality. And actual finite time is the form of experiences of change. What boots it, then, to talk of timelessness or time-transcendence if change be ultimately real?

We can frame no positive notion of a conscious self for which change and succession are unreal. On the other hand, the self maintains a consciousness of its own continuous identity in the midst of change. The consciousness of identity is just as integral to experience as the consciousness of change. Moreover, there rise above the surface of the stream of personally experienced becoming certain uniquely significant, emotional and intellectual experiences in which seem to inhere the quality of *time-transcending worth or value*. In these the self seems to find eternity in the midst of change.

The continuous identity of the self is marked by striving, feeling and purpose. The self loves and aspires, hopes and plans, etc.; and is aware of its own relative continuity of aim in the growing consciousness of its persisting interests, in the increasing harmony of these interests, attained through the systematic organization and fulfillment of ends.

The more completely the self is able to harmonize its qualitatively various interests, and to establish a persistent and developing system of ends, the more fully does it seem to achieve and enter upon a life of continuous activity and inward permanence in "becoming"; in other words, upon a life in which change means the growing enhancement of *personal values*, a life in which the past is conserved by fusion with the present and the present grows by interpenetration with the past. Through this unity of synthesis mere blind change is transcended. The permanence of the self is constituted by the persistent and growing organization of purposes. And the most abiding and self-complete experiences, the time-transcending emotional experiences and intellectual insights already referred to are constituted by the fulfilment of purposes, by the realization of intrinsic values. Such are the expression in personal deed, and the presence in personal insight, of over-individual principles of worth

—of those spiritual values represented by knowledge, righteousness, beauty, love. In these experiences the unity of self-consciousness is one of concrete inner organization, of harmonious synthesis. It is a reality that at once persists and progresses. In short, the life of the self progresses or “becomes” as a unity. Our so-called acts and experiences of time-transcendence are, in every sphere, due to the continued synthesis, by the self, of a succession and variety of interests, values, meanings. Our purposes are effected through temporal processes, *i. e.*, series of means. And the principles which I have called “intrinsic values” are the generalized principles of purposive synthesis. The time-transcending quality of personal values does not mean that these values have had no historical antecedents or conditions in culture-life and the processes of nature. It means only that, to the inherent significance of these values, the causal conditions of their origin are irrelevant. But these values can be real and effective only in so far as they persist through change, and, by this effective persistence and cumulative expression, give a synthetic unity of meaning and direction to the experiences and deeds of selves.

In the cosmical realm the correlate of human temporal experiences would seem to be a dynamic process or movement which the human self can, in part at least, interpret, on which it exercises a limited control, and to which it can adjust itself. In order to consider the bearings of our results so far, on the problem of cosmical change, let us assume that the entire system of reality, cosmical and psychical, may be interpreted in terms of a psychical cosmic life which somehow comprehends in its own systematic unity both the lives of finite selves and the movements of the outer or physical order. If there be a supreme center of experience or psychical unity, what do change and becoming mean with reference to it? Since our temporal experiences of change are highly significant, both for our private lives and for the interpretation of the outer order, these and analogous facts must somehow contribute to the psychical life of the ultimate systematic unity. The supreme spirit, *for* whom we suppose the whole system of reality to exist in its concrete individual unity, must somehow take cognizance of change in us and be aware of our development and retardation, of our failures and our triumphs.

Hence, if we recognize any real significance in the human experience of change and growth, we must admit that this experience somehow enters into the ultimate unity of experience. This unity we are led by the consideration of the congruence of our rational purposes and activities with the outer order, to define provisionally as an all-embracing systematic unity of meanings and values, a

progressive realization of a unity of cosmic life. The possibility of time-transcendence, of human ends presupposes the ultimate reality of a progressive unity and system of cosmic ends, in which time-transcendence would be an integral element, though we may not understand it in this way. This presupposition means the reality of a cosmic unity, in terms of something analogous to what we know of in the life of man.

If the unity of our own personal experiences entitles us to assume the unity of the spiritual unity of meanings and values as transcending time, and if the persisting synthetic unity of the purposes of mankind controls and sustains a *significant* or, if preferred, a *valuable* life, then the synthetic continuity of the universe of purposes of which, in its affirmation and fulfilment of values, purposes, values, it functions as a persisting dynamic unity, transcending the external distinctions of past, present and future, would transcend any formal time-order. If there be a system of cosmic or all-meanings, truth, goodness, beauty, etc.) to which our own ends or principles of intrinsic valuation stand in some positive, though it be to us unknown, relation, then, by analogy, we may conceive a time-transcendence that is not mere negative timelessness. These absolute values would be, by hypothesis, the ultimate conditions for the progressive fruition of conscious life in finite individuals. The only admissible form of time-transcendence would be that of a system or organism of intrinsic values, an effective and controlling unity of cosmic meanings, that did not originate at any definite point in the actual series of cosmical changes and that maintain and, perhaps, increasingly manifest, themselves through series of changes.

Time-transcendence, then, would mean, not the negation of change, but the persistence, through change, of an organized unity of ends that preserves the effective continuity of its purposes throughout the (from any finite point of view) endless succession of events. From this point of view we may at least partially understand how change may really take place, and yet be subordinated to a unity of changeless or continuously effective meanings or worths which would so control the universe of change. Our own persisting purposes are but partially fulfilled, and, indeed, but partially understood by us. Nevertheless, in so far as purpose is continuously fulfilled, the life of mere change is being transmuted into one of enduring meaning and value. One may conceive a timeless knower or self as above time, and, as embracing many simultaneous and successive series of changes in the unity of his conscious activity, in so far as he grasps and maintains continuously the inner relationships which bind together these parallel or successive serial changes; his

thought and will might be timelessly valid in the meanings which he enabled to be realized in a universe of psychical individuals, so constituting their changing lives the instruments and embodiments of permanent psychical and spiritual values.

This comprehensive, synthetic grasp of series of events in their inner and significant relationships is all that can be meant by a timeless knowledge of the actual universe. If the same synthetic principle that grasps the totality of series be the sustaining ground of the series, then the time-spanning character of the act of synthesis becomes more intelligible.

The persistence or continuity of an organic whole of intrinsic, personal principles of value, which insures that, in the march of actual events and the alterations of finite individuals, spiritual values are realized, is all that can be meant by a timeless self as conservator of intrinsic values. Such a self can not be timeless, in the sense of negating the temporal order, or unchangeable, in the sense of having no positive relation to change. He can transcend all time-series only in the sense of comprehending, in a continuous organic unity or synthesis of relationships, their meanings. He can transcend change only in the sense of maintaining a continuous identity of aim throughout change, and in making the ceaseless succession of cosmical changes subservient to a systematic totality of meanings and values. If there be an organic whole of rational meanings and spiritual values which sustains the entire cosmic system of lives, and which, consequently, is the ground of the harmony between the values or meanings of finite psychical centers, this ultimate organization of meanings is the cosmic spiritual principle or self.

This hypothesis subordinates temporal succession and all forms of change to the category of end or spiritual meaning, which is regarded as the synthesizing and directing principle through which succession is known as such, and through which change becomes intelligible by reason of the continuity of meaning that holds it together. The isolated facts of change and process, then, are identical with the mechanism of *means*, and this mechanism is such because it yields and sustains intrinsic meanings and values. Time, as the form of change, is relative to our analysis of the stages and instruments of a purposive movement that, in its whole actuality, is a significant synthesis.

This conclusion may be illustrated by the analogy of our own purposive experience. When we conceive and attempt to carry out a purpose, to satisfy some interest other than the mere exercise of discursive thought, time enters into our thought only in so far as the purpose is baffled by failure to find the appropriate means,

or in so far as the activity which seeks satisfaction is hindered. When by sustained thought or action of any sort we have surmounted all obstacles and attained what we sought, in the enjoyment of the end and, indeed, in the growing fulfilment of any interest which absorbs the self, time is transcended as the act of seeking and devising passes into the realized experience of that which is sought. This is "teleological becoming" in contrast with mere aimless change. It is this sort of growing fulfilment or cumulative expansion of the self's life, that gives a time-transcending synoptic character to all successful serial activities—to the enjoyment of music and poetry; to the skilled player of games; to the successful prosecution of research; to all profound personal emotion, love, religious devotion, etc.

Now we should only have to conceive the ultimate self or cosmical psychical unity as one which is never permanently baffled, one which sees clearly every purpose and value in its relation to the whole system of finite experiences and actions. Then it becomes possible to understand, in some measure, how such a self in its knowledge may transcend every formal time-order without abolishing the reality of human development or of cosmic becoming, and without ceasing to express and find its own life in the temporally conditioned world through the unceasing synthesis of this world's manifold variety of interests, aims and meanings.

I recognize that the notion of an unbaffled cosmical purpose involves serious difficulties. I am not concerned to maintain it as the only concept of a world unity and space-limits forbid my dealing here with the other difficulties than that of time, by which such a concept is confronted.

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THE TIME OF PERCEPTION AS A MEASURE OF DIFFERENCES IN SENSATIONS

THE recent publication of Henmon's thesis, with the above title, in which are reported experiments on color, on linear magnitude, and on tonal pitch,¹ encourages me to offer a very brief account of similar experiments performed with lifted weights. The work was begun in the Harvard psychological laboratory, at Professor Münsterberg's suggestion, as long ago as 1893.² It was not, however, until 1903 that I was able to carry an experimental series

¹ *Archives of Philosophy, Psychology and Scientific Methods*, No. 8, July, 1906.

² The method was originally proposed by Cattell; see *Philosophische Studien*, IV., 1888, p. 250; *ibid.*, Festschrift, I. Theil, p. 63.

to completion. The new experiments were made in the psychological laboratory of the Tokio Imperial University, with the permission of Professor Motora.

The method employed was that of right and wrong cases as explained by Fechner, whose rules of procedure were strictly followed throughout. The times of reaction were taken by the spark-method, as described by Scripture. A detailed account of the experiments will be published later; I desire now simply to present the full set of results obtained with one observer, in order to show the feasibility of the method of time of perception as applied to the comparison of lifted weights.

In the following tables, P_1 stands for the standard weight, P_2 for the weight of comparison, both in gr.; D is the difference in weight between the two holders; and the times of reaction—the averages of the first forty right cases secured—are expressed in sigma. Constant errors of time and space have been eliminated.

TABLE I

RIGHT-HAND SERIES. $D = 0.04 P_1$

P_1	P_2	σ	P_1	P_2	σ
300	288	699	300	312	755
500	480	566	500	520	616
1000	960	491	1000	1040	506
1500	1440	420	1500	1560	423
2000	1920	346	2000	2080	349
3000	2880	312	3000	3120	319

TABLE II

RIGHT-HAND SERIES. $D = 0.08 P_1$

P_1	P_2	σ	P_1	P_2	σ
300	276	471	300	324	449
500	460	425	500	540	451
1000	920	355	1000	1080	419
1500	1380	278	1500	1620	301
2000	1840	238	2000	2160	279
3000	2760	206	3000	3240	233

TABLE III

LEFT-HAND SERIES. $D = 0.04 P_1$

P_1	P_2	σ	P_1	P_2	σ
300	288	638	300	312	575
500	480	495	500	520	533
1000	960	396	1000	1040	410
1500	1440	383	1500	1560	326
2000	1920	343	2000	2080	295
3000	2880	304	3000	3120	309

SOCIETIES

THE MEETING OF THE THIRD INTERNATIONAL CONGRESS OF PHILOSOPHY, AT HEIDELBERG, AUGUST 31 TO SEPTEMBER 5, 1908

FOR the third time the International Congress of Philosophy has met, and I think every unprejudiced observer must admit that the meeting has been of value. About three hundred philosophers—it is a pity that word has become almost too dignified to fulfil the homely function of describing living teachers—came together in the famous little city on the Neckar so long dominated by Kuno Fischer, a larger number than visited Geneva four years ago. That the congress has in it the “promise and potency” of a permanent existence seems evident, though experience will, no doubt, suggest changes in its organization.

On the part of many professors of philosophy in Germany, as elsewhere, there is still some doubt of the utility of such a gathering. On a visit to half a dozen of the South German universities in the spring, I heard this expressed many times. Three hundred philosophers with three hundred distinct philosophies, it was said, when all collected in one town, might easily occasion *Strassenkrawalle*. And, with the jest, real difficulties were indicated, the difficulties arising out of the breadth of the field and the widely differing points of view of the different individuals who cultivate it.

The first of these difficulties it was attempted to meet by having recourse to the usual device of general and sectional meetings. Four general meetings were arranged for, in which representative men should, each in his own tongue, discuss some subject likely to be of interest to the congress as a whole. At the first general meeting, after a graceful word of welcome from the President, Professor Windelband, Professor Royce spoke at length on “The Nature of Truth in the Light of Recent Discussion.” As might be guessed from the title, he touched upon pragmatism, and, although he spoke in perfect taste, he was a trifle sharper in his criticism of some forms which this doctrine has taken than he usually is in his criticism of opposing doctrines. He stood out stoutly against all relativism, and, though he suggested as a title for his own position “absolute pragmatism,” there were those present who thought it would have been better to have chosen some other name, as Professor Royce champions absolute truth, and is a voluntarist only in the sense that he regards as the foundation of absolute truth not, like Kant, “forms of the intellect,” but rather “forms of the will.” The address will be published, and I need not analyze it here; it was listened to with pleasure, and was warmly applauded.

At the next general meeting there was a brief, but eloquent, address by M. Xavier Léon, of the *Revue de métaphysique et de morale*, on Fichte. This was followed by a lecture in Italian, by Benedetto Croce, of Naples, who took as his theme "The Lyrical Character of Art and Pure Intuition." Signor Croce criticized a number of "intellectual attitudes" towards the problem of esthetics – the empirical, the practical, the intellectual, the agnostic, and the mystical – and argued that, in art proper, we have to do with pure intuition, freed from all intellectual and speculative elements, with the mere expression of emotion or of an attitude of the will. He maintained that we misconceive art in forgetting that it is in its essence naïve and unreflective. It is to be regretted that the address was in the Italian language, for it was full of suggestive thoughts, and it is to be feared that many of the members present did not catch its full significance.

The third general meeting was to have been dedicated to the French philosophy, represented by Bergson and Boutroux. Unhappily M. Bergson was prevented, by illness, from being present. In his place, Professor Windelband made an address on "The Concept of Law," in which, as might have been expected, his Fichtean attitude toward the problem came to the front; and, as also was to be expected by those who know him as a lecturer, his grace and ability as a public speaker were to be remarked. Professor Boutroux sketched the development of philosophy in France during the last forty years. He dwelt upon the tendency to specialization which had made it appear for a while as though philosophy would be dissolved into a group of independent sciences, and disappear as philosophy; and then pointed out that the special philosophical sciences, when they dig deep enough in their own field, meet with epistemological, cosmological, and practical problems, which seem to draw them together, and which directly concern metaphysics. The simplicity and charm of Professor Boutroux's diction and method of exposition captivated even those of his audience to whom metaphysics is a word of ill omen.

For the fourth general meeting, as for the third, a change of program was necessary. Professor Lipps had been announced to speak for the Germans, but an illness compelled his absence, and Professor Heinrich Maier, of Tübingen, well known for his Aristotelian studies, kindly consented to read the paper on David Friedrich Strauss which he had announced for one of the sectional meetings. The choice, both of the subject and of the man, was a good one, for it was desired to have a theme of general interest; and it seemed especially fitting that Tübingen, where Strauss taught and where the storm gathered over him, should be heard from.

So much for a very brief account of the general meetings. Of the sittings of the several sections it is impossible to speak with even an approach to adequacy. More than one hundred and fifty papers were announced, and the fall of the avalanche was regarded with apprehension by the most stout-hearted.

This mass of special papers was divided, by subject, among seven sections. These were the sections for: (1) The History of Philosophy; (2) General Philosophy, Metaphysics, and the Philosophy of Nature; (3) Psychology; (4) Logic and Epistemology; (5) Ethics and Sociology; (6) Esthetics; and (7) The Philosophy of Religion. These were presided over by, respectively, M. Léon, Professor Külpe, Professor Münsterberg, Professor Maier, Professor Jellinek, Professor Cohn, and Professor Troeltsch. The presidents of the sections were, with the exception of M. Léon and Professor Münsterberg, all from the universities of Southwest Germany, and Professor Münsterberg, from his former connection with Freiburg, and his present relations to the men in Freiburg and Heidelberg, we may almost regard as a South German. This selection of officers was natural, and it quite possibly facilitated the transaction of business. There was no evidence that it gave a sectional flavor to the work of the congress.

A glance over the list of papers announced is sufficient to show that the congress was truly international. Germany, of course, led the way, with the largest number. Then came France, rather a close second, with Italy and Austria some distance behind. After that came the United States, Great Britain, and Switzerland, with Russia, Belgium and Sweden behind them; and Norway, Spain, Peru, Turkey and Bulgaria brought up the rear.

The center of interest in the philosophy of our time was rather clearly indicated in the choice of the topics for discussion, though one must, of course, bear in mind that the place of meeting had something to do with the distribution of papers. Some sections were kept very busy; others—the sections for esthetics and the philosophy of religion—had little to do. Logic and epistemology enjoyed the center of attention, and the program of the section devoted to them was always full. In the next rank came the history of philosophy, general philosophy and metaphysics, and ethics and sociology. It is worthy of note that the Germans and the French seemed especially absorbed in epistemological problems, while the Italians showed, on the whole, a greater interest in ethics, sociology and religion.

But one thing that must have struck the Americans present was the absence of any general wave of interest in a single topic, like that which has filled our own journals, for the past two years, with

papers for and against "pragmatism." For this we may account in part by the international character of the congress, which insured a many-sided philosophical activity. Too many centers of influence were represented to permit of absorption in the doctrine of any one man or group of men.

Pragmatism was represented, to be sure; for Dr. Schiller was present with a paper, in German, well calculated to unlock to the Teutonic mind the mysteries of the new philosophy. It was a good, clear paper; and, while energetically supporting the thesis of the pragmatist, did not speak abusively of those to whom the new light is as darkness. Nevertheless, it could not, as an olive branch, be regarded as wholly a success, for one or two of those who took part in the discussion (I am glad to say, not Americans) descended to the use of rather unparliamentary language. Which reminds one that it seems, so far, to have been the fate of this doctrine of hope and happiness for all to bring to men, not peace, but a sword. While speaking of pragmatism, I may refer to the admirable analysis of the different aspects of the movement contained in a paper by Professor Armstrong. The paper announced by Signor Papini was, to the surprise of some, not upon this topic.

The interest of the American delegation—not a very large one—seemed predominantly in epistemology, Royce, Baldwin, Armstrong, and Mrs. Franklin all treating of some phase of this subject. Of other sectional papers it is impossible for me to speak, for, as above indicated, the mass of material was overwhelming. But I may, at least, refer to those by Külpe, Cohn, Lasson, Falkenberg and Tönnies, which will, fortunately, appear in print. The unavoidable, but unfortunate, division into sections made it impossible to hear some of the discussions one would most have wished to hear. There is a certain fatality which appears to condemn the best men to read their papers in different rooms at the same hour.

Any account of the congress would be incomplete which did not give express recognition to the great courtesy and hospitality with which its members were met in Heidelberg. The government of the Grand Duchy, the authorities of the city, and the representatives of the university, joined in giving us a hearty welcome, and made every provision for our comfort and even for our entertainment. A large share of the work fell, of course, upon the shoulders of the president, Professor Windelband, and of the general secretary, Professor Elsenhans, both of whom appeared to be everywhere, and to find time for a courteous attention to the wishes of every one. Excursions were arranged to various points in the beautiful environs of the town. Perhaps the most interesting of these was an evening boat ride down the swiftly-flowing Neckar, with a view

from the boats of an illumination of the famous castle on the hill. On the last evening there was a banquet given by the government of the Grand Duchy, and the members of the congress had the pleasure of hearing toasts in lighter vein from some of the best speakers that the meeting had brought together.

In closing, I may be permitted to record one or two impressions that I have carried away with me, and that touch, not merely this congress, but all gatherings of the sort. A certain amount of dissatisfaction was expressed—not in the least with the arrangements at Heidelberg, for they were admirable—but with congresses as such. Many men, with widely differing views, are brought together; it seems hard for them to get near enough to one another to enter into profitable discussion; a congress must open its doors to those who wish to take part in it, some come who do not greatly contribute to its usefulness, and they do not elect to come as listeners; the number of papers presented may easily become an embarrassment. What can one say in the face of these problems? As regards the material presented, I am inclined to think that it will be found necessary to exercise some supervision, though the dangers of a censorship in philosophy are too palpable to need comment. And as to the coming together of men of different views, I feel strongly that it is better for them to meet and misunderstand each other than not to meet at all. Strange as it may seem, the European scholar appears to live in a state of greater isolation than the American scholar. There is danger of his magnifying the value of his own doctrine, of his growing sensitive to criticism, which is his only safeguard. The greater his industry and zeal, the greater his danger. Congresses, whatever their shortcomings, may help to bring him into living contact, not with those who already are of his party, but with those who may help him to realize that philosophical doctrines should be held tentatively and with reservations. In so far as they serve this purpose, they must be of use.

GEORGE STUART FULLERTON.

HEIDELBERG, September 7, 1908.

REVIEWS AND ABSTRACTS OF LITERATURE

La morale rationnelle dans ses relations avec la philosophie générale.

ALBERT LECLÈRE. Paris: Felix Alcan. 1908. Pp. 543.

At a time when various forms of empiricism are so much in evidence and when especially in the field of morals the extreme empiricism of the pragmatists, while just because extreme in the peculiar danger of overtaxing or outrunning its own conceits, is attractive to so many phi-

losophers, a call to pure reason, or to real logic and to metaphysics, such as is implied in this work of Professor Leclère, is more than merely intellectually interesting. It is distinctly useful. In their contributions to philosophy the French have been strangely impartial, dividing their labor quite evenly between interest in life as abnormal and interest in life as eminently normal or rational, and Professor Leclère's latest book, which in general may be characterized as both brilliantly and suspiciously systematic, serves as an excellent balance against the works that have recently been contributed on the other side—only, it is by no means either impertinent or very subtle to remark that one can not always determine, as between the two sides, which is really *the* abnormal. In the present book, however, the rationalism is certainly unusually sane, being broad enough and deep enough to escape any very serious offenses against experience.

In justification of his systematic treatise with its avowed appeal rather to reason than to facts, the author sees in the empiricist only an unconscious rationalist. "N'est il pas un rationaliste qui s'ignore plus ou moins?" To quote further (p. 15): "Un des traits les plus curieux de l'empirisme depuis A. Comte, est qu'il professe d'ordinaire une espèce de dogmatisme scientifique qui est une simple transformation du dogmatisme intellectualiste par lui méprisé. Même, certains pragmatistes ne sont pas exempts, malgré leurs prétentions à un empirisme absolu, d'une tendance à dépasser les conclusions auxquelles se tient la généralité des penseurs qui redoutent toute démarche extra-scientifique. Ou dirait que l'ombre de cette raison pure qu'ils ont cru exorciser, leur en impose encore à travers les faits et l'ordre qu'ils y constatent: l'agnosticisme les séduit de moins en moins." And once more: "Quant au criticisme, il n'est point paradoxal d'y dénoncer un intellectualisme déguisé, où se déploie un esprit métaphysique très subtil." In short, all philosophers really are rationalistic, though many of them without knowing it, and Professor Leclère insists only on being self-consciously and deliberately so; a form of defense that *mutatis mutandis* might easily be used by the empiricist, since on its side rationalism, in spite of avowal and disguise, has never yet succeeded in freeing itself wholly from the cues supplied by empirical fact. And might one not even go so far as to contend that an unconscious, indirect, or disguised rationalism has a chance of success that consciousness and specific intent, subject as these are to certain formal limitations, must always forego? Is not the ultimately and absolutely rational quite too large an order to be filled by any direct methods? But such questions as these, when all has been said that can be said, are only very soft impeachments of the book now in review. Empiricism being what it is, a formal, deliberate rationalism must always have a place, important and dignified, in positive philosophy, and this book by Professor Leclère, whatever its justification under other tests, is certainly justified, as already said—and may I be forgiven the word!—under the very timely test of utility.

The book, divided in two main parts, comprises in the first part

chapters on "Ethics and Religion," "Science, Philosophy and Ethics," "The Comparative Value of the Basal Types of Ethical Theory," and "The History of Ethics"; in the second part, which is acutely analytical as to the various departments of ethics, hereafter to be mentioned, it becomes highly, but at the same time quite transcendently, practical in a series of six short but closely reasoned chapters, dealing with personal and social life and with life in its civic and cosmopolitan phases and in its religious character; and then at the very close it gives three well-packed pages of "Conclusions," in which, as might have been long foreseen by the reader, the *sur-homme* comes once more to his own, and in which the author shows himself to be not less deeply emotional than rationalistic. In this notice I have to content myself with brief reference to the classification of the sciences as given in the chapter on "Science, philosophie et morale" (see especially the table on pp. 52-3) and to the surprising character of the conclusions.

In his classification of the sciences Professor Leclère seems at his best. The principle and method are close to Comte, but, of course, are carried much farther. The author of the positive philosophy could not honestly give much, if any, direct attention to pure philosophy, to those disciplines which Leclère styles "*Les sciences du non-donné*," but the region of the not-given is the peculiar interest of this more recent writer. Thus, upon his series of "*Les sciences du donné*"; (1) Mathematics, (2) mechanics, (3) physics, (4) chemistry, (5) biology, (6) psychology, (7) sociology, Professor Leclère imposes, in an order that is held to be still loyal to Comte's movement from simplicity to complexity, the various departments of pure—ever more and more pure?—philosophy. To begin with, as regards the place of the philosophical disciplines, it is noteworthy that the various philosophies of the individual sciences and also the general philosophy of the sciences—the "*science of the sciences*"?—are referred to the given, being "*sciences de ce qui se conclut proprement du donné*" and being numbered respectively 8 and 9 in the series of the positive sciences. These, then, are not philosophy properly so-called. Real philosophy comprises in order: (10) logic, dealing with that which is "*supposé dans le donné*"; (11) criticism, with the "*supposé par le donné*"; and (12) metaphysics, with the "*suggéré par le donné*." Of course each of these has its peculiar subdivisions, but, these aside, the completed list is noticeable especially for the absence of ethics. Has ethics, then, no place in a classification of the sciences? Ethics, we are told, is peculiar, lacking the character of a single science, being "*moins une science qu'un faisceau de parties de sciences*" (p. 81). This view of ethics is carried out in the following subdivisions, best given in the French (p. 53): "1° Ethologie inductive, individuelle et sociale (sources: psychologie, sociologie, biologie). 2° Ethocritique (critique). 3° Métam morale (métaphysique)," and in a definition of ethics, as careful as it is cumbersome (p. 90): "*Le morale est la science des conditions de fait, individuelles et sociales, du jugement moral normal; du rapport de ce jugement avec la pensée en générale et de son objet avec l'être en générale; des moyens,*

enfin, dont la connaissance peut servir à réaliser l'accord du jugement moral avec la nature de l'être qui le porte et de l'univers au sein duquel il est porté."

Finally, the work concludes with a glorified individualism. "Le surhomme que nous appelons de nos vœux serait à la fois le plus individualisé des hommes, le plus jaloux d'indépendance, et pourtant le plus sociable, le plus disposé à se servir de sa valeur individuelle pour le bien de tous; il ne serait l'esclave que de l'idéal." And in view of this individualism we are asked to dream and are told quite confidently that we may dream of "association sans socialisme," of "liberté sans anarchie." Is not the modern citizen breaking away from "le parlementarisme et donc l'étatisme"? "Qu'on se détrompe! L'individualisme fera le miracle que l'étatisme est impuissant à réaliser; le voyez-vous qui déjà fait ses preuves!" But, to say no more, the surprise of all this, perhaps, too, the peculiar glory of it, is that an absolute empiricism must feel as if it were beholding its own unsuspected glory in a mirror.

ALFRED H. LLOYD.

UNIVERSITY OF MICHIGAN.

The Education and Problems of the Protestant Ministry. DAVID SPENCE HILL. Worcester: Clark University Press. 1908. Pp. 94.

This pamphlet of ninety odd pages, reprinted from the *American Journal of Psychology and Education*, is a condensation of seven chapters prepared "in investigating the status, problems, life, and education of the Protestant ministry in the United States." The discussion bears upon two points, "ministerial life and work" and "theological education." In the treatment of the first point, there is a running comment upon the replies received from a hundred or more persons whose opinions were solicited in reference to the qualifications of the minister—intellectual, moral, and the like—and in reference to his pastoral duties—the matter of sermons, prayer, communion, baptism, marriage, etc. The suspicions one might have as to the competency of the witnesses are allayed in advance by the assurance that the persons are "informed upon this subject" (p. 9). It is interesting to note the disagreement among these experts. For example, a woman of 19 states: "A minister should be a graduate of some theological seminary and should have studied theology, literature, history, sociology, psychology, Hebrew and Greek" (p. 17); while another woman of 22 avers: "The work of the pastor does not demand a knowledge of Hebrew or Greek, but he should know psychology, literature, history and theology and have at least an elementary knowledge of sociology, criminology, physics, chemistry and biology" (p. 45). While the reader, who is actually engaged in the business of training college graduates for the pastorate, is grateful for the opinions of these experts, he would have been still more grateful to them had they bothered to give reasons for their opinions. They are not, however, to be blamed, for Mr. Hill asked them, not for an opinion with reasons, but for an opinion without reasons.

The conclusion which the author draws from the possession of what he calls "a rude cross-section of the minds of a small group" amounts to little more than this: that the pastor is a valuable man in the social group and that he should be better trained (p. 53).

With this we are brought to the second point, theological education. The relation of this point to the results gained from the testimony of the informed is not obvious. It is, however, evident that the author himself has a definite and withal a most generous notion of what the work of the pastor should be. Indeed, the enumeration of functions fills a page (p. 53 f.) and covers almost everything except instruction in the knowledge of God and of the Christian Scriptures. With this ideal of the minister's calling—postulated, be it observed, not discussed on its merits—it becomes easy to criticize the methods and the courses of study obtaining in existing theological seminaries. There is too much theology, he is good enough to tell us, "in its various divisions, of languages, Hebrew, Greek exegesis, and of history" (p. 69); and while he insists upon the necessity of the study of religions, he has a distinct aversion to dead languages. The reviewer hesitates to refer to Jastrow's opinion that the knowledge of a religious document in the original is indispensable to the student of religions ("Study of Religion," p. 341), or to Wernle's fancy (in his recent masterly discussion of the training essential to a German pastor, "Einführung in das theologische Studium 1908"), that to know the teaching of Jesus one must have a knowledge not only of Hebrew and Greek, but also of Aramaic, the language of the Master; for Mr. Hill has already told us that the excuses given for such idol or fetich worship are hackneyed and exploded (p. 78). Philology, however, is not his strong forte, as his incursion (p. 2) into Hebrew transliteration and Greek lexicography reveals.

What the author has to say about training in scientific methods generally and in modern psychology in particular, is a point well taken, but hardly novel. And what he has to say about his University of Religion, the tentative character, if not crudity, of which he seems to feel (p. 87), would have gained in force had he read Professor G. F. Moore's brief but thoroughgoing address, "The Field of an Undenominational School of Theology," published in the *Harvard Graduates' Magazine* for December, 1902.

Teachers in theological seminaries may indeed be backward, as the author alleges, but some of them, at least, are open-minded and ready to learn. To such Mr. Hill's book, as he calls it (p. 2), is a bitter disappointment; for while the title is alluring, the method is, at least to them, strange and unconvincing. Mr. Hill really begs the question of the function of the minister, and his appeal to "common sense, experience, and pedagogy" is not proof. There can be no quarrel with his use of the "questionnaire method," since on his own admission the results are "for the purpose of illustration and suggestion" (p. 9). If Mr. Hill in his forthcoming book would give us a real discussion of the function of the minister and the nature of his message before he plunges

into a critique of the methods and work of existing seminaries, he would receive the thanks of all those who are trying to equip college men for the pastorate of the Christian Church of to-day.

J. E. FRAME.

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Croyance religieuse et croyance intellectuelle. OSSIP-LOURIÉ. Paris: Félix Alcan. 1908. Pp. 175.

M. Ossip-Lourié is the author of several works on literary and philosophical subjects. His "La philosophie de Tolstoï" was crowned by the institute, and all of his works have been well received by the leading literary and philosophical journals of France.

The present work is symmetrically constructed of three parts, with three chapters for each part. The first part contrasts religious and intellectual belief, the second sets forth an intellectual theory of morals, and the third presents the author's faith in a teleological view of the world. The book begins: "Man is a believing animal. Wherever there is human life there is belief. Belief is one of the essential facts of our nature. The constitution of our intellectual and moral being attests the imperious need of believing. . . . To live is to believe."

Man's beliefs originate in himself. He can not attribute his life to himself, and so he seeks a cause for it beyond himself. He invents a deity and strives to unite himself to a super-cosmic force. The lower animals give evidence of moral and religious faculties, for the foundation of religion is the recognition of beings more elevated and better than ourselves. Many animals recognize the physical superiority of others, and the horse and dog recognize the intellectual and moral superiority of man. "Man is a god to his dog." Religion has developed with the general progress of humanity. But each religion that has sprung up has passed away sooner or later. Christianity, like all super-terrestrial religions, is on the point of disappearing, is, in fact, dead in some countries already. But this is no sign of decadence. "The end of super-terrestrial religions will not deprive humanity of all belief, of all ideal. On the contrary, the old dogmas rejected, it will be more easy for us to complete our intellectual and moral emancipation. . . . So long as we have no irrefutable proof that all research will be forever vain, we have the right, we have the duty to believe that man will discover soon or late the secret, the meaning of life. . . . A man wholly without belief is an abnormal phenomenon. . . . Intellectual belief admits the existence of an end of the universe and the possibility of discovering it some day by the study of nature and the phenomena of life; it excludes all hypothesis of a supernatural being; it submits to no dogma, it is free." Contrasted with the freedom of intellectual belief, religion forbids us from asking the two principal questions of how and why; it destroys all freedom of thought and conduct in the individual personality. "The greatest argument of intellectual belief is the individual will to live."

This intellectual faith may even lead to mysticism, but "intellectual mysticism is no pathological obsession, it is a superior form of the intellectual belief which procures a supreme felicity, a joy which makes us capable of enduring all sacrifices, all privation in order to realize ideas we believe just."

Religion in general and Christianity in particular are as destructive of morality as of science. Christianity does not exact perfection, but a pathological sanctity; it is anti-social, anti-human; it stifles man's aspirations, arrests his movements, falsifies his mind and conscience, condemns his will. Animals are instinctively moral, but man possesses a sentiment called the moral sense which distinguishes him from the rest of nature. Man does not owe his morality to revelation and dogma, and the passing of dogma will not disturb morality. The old beliefs have crumbled, but morality pure and independent lives in all its grandeur and all its power. Morality should allow free scope for individual development. "All that which is truly individual possesses at the same time a universal value." Morality is not a system to be imposed on man from without; it is free, independent, evolutive. Conscience and reason are the all-sufficient moral guides for every man.

Why is it that continental writers know of no form of Christianity except that of the mediæval cloister? The criticisms of Christianity in this book apply well to mediævalism, but the writer seems equally ignorant of the religion of the gospels and of modern liberal Christianity. From the latter point of view his strictures are utterly meaningless. Some knowledge of the psychology of belief and the psychology of religion might have considerably modified his view of the relation of the two sorts of faith which he sets in such violent opposition. After all the book is not a philosophical study, but an individual confession of faith. One may say the same of it as was said of an earlier work of the author by a reviewer in the *Revue de métaphysique et de morale*: "On ne regrette pas d'avoir lu ces pages élégantes et facile, cette profession de foi apaisante d'une âme noble."

F. C. FRENCH.

UNIVERSITY OF NEBRASKA.

Hygiene of Nerves and Mind in Health and Disease. AUGUST FOREL, M.D. Translated by H. A. AIKINS. New York: G. P. Putnam's Sons. 1907. Pp. 343.

Treatises attempting to offer for ready assimilation the results of modern views of mind in health and disorder and to apply these practically to the regulation of life are becoming increasingly popular. In this field no one has as yet achieved a distinctly notable success; and it can not be said that Professor Forel's volume differs from many of its fellows. The plan and execution of the work do not suggest any great enthusiasm for the task upon the part of the author. The original is doubtless more nearly adapted to the popular comprehension and taste of the European than is the translation to the demands of the American

layman. The plan offers a most eclectic primer of psychology and neurology, selecting the prominent terms and rubrics and giving to each an intelligible and brief exposition. The second part of the volume deals similarly with the leading varieties and symptoms of the abnormal mental life, correlates these with the observable characteristics of human distribution of qualities, and thus familiarizes the inquiring student with the main aspects of deviation, defect, and disorder. Upon the basis of the conceptions thus established the final portion of the volume takes up considerations of hygiene. The point of view is eminently sane, and great emphasis is laid upon the natural data of soundness of body upon which all hygienic stability and improvement of race depend. Pedagogics comes in for a share of the right inclining of the twig, and prevention is exalted above treatment. Also on the matter of treatment much good sense is exhibited in favoring those agencies that strengthen natural functions. All this we out-door loving Americans understand more readily than does a nation civilized to every corner of its frontier and devoted with curious lack of inquiry to cures and resorts. Professor Forel is a great believer in total abstinence and gives a prominent place in his book to the work of the several societies combatting the alcohol habit in the old country. He believes equally that alcoholism is responsible for a greater share of mental abnormality than any secondary factor, and that its indulgence in moderation results in an enfeeblement of the mental powers not to be disregarded.

It thus appears that, with no unusual programme or originality of view, or indeed with any notable message to deliver, Professor Forel has used his intimate acquaintance with the phenomena from all sides to set forth in plain language a convenient survey of the data now available for the understanding of the hygiene of the mind. Popularizations of this type must, as a rule, be prepared with reference to the assimilative powers and tastes of the clientele to which they are addressed. It is certain that a book written by an American for the American public would be more apt to secure for the subject the hearing that it deserves than is an adaptation of a text evolved under wholly different conditions. Moreover, such a writer must come to his task with a decided, even an exaggerated, sense of its importance and a certain hortatory gift which this volume does not exhibit.

JOSEPH JASTROW.

UNIVERSITY OF WISCONSIN.

JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. September, 1908. *Anti-pragmatisme*. I. *Pragmatisme et modernisme* (pp. 225-255): A. SCHINTZ. — The hold of pragmatism is not due to its intellectual appeal, but to certain social conditions here discussed. *Du rôle des idées dans l'évolution des sociétés* (pp. 256-280): DR. JANKELEVITCH. — Social progress is brought about by the opposition of ideas to facts, and is the result of the work of picked individuals. *La solidarité enfantine: étude de psychologie*

social (pp. 281-300): R. COUSINET. — Appreciation of the solidity of society should be the basis of moral training in the school rather than maxims, which are too often regarded merely as abstract propositions. *Notes et discussions: Sur la responsabilité des fous et des criminels*: DR. CHASLIN. *Analyses et comptes rendus*: Roussel Despierres, *Liberté et beauté*: L. ARRÉAT. R. Wallace, *La place de l'homme dans l'univers*: JULES SAGERET. *Revue des périodiques étrangers. Notices bibliographiques*.

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NOTES AND NEWS

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

GENTLEMEN: An old student of Professor Royce's has just finished reading his chapter on "Truth" in his "Philosophy of Loyalty." He hoped to get some light on Professor James's tentative definition of truth. He is still unable to understand human thought process except in the fashion of Professor James.

The lower nervous centers are sensori-motor. An incoming stimulus touches off an outgoing response. It is supposed that when this sensory stimulation reaches the cortex it is accompanied by sensation. It is probable that where a conflict between sensori-motor processes takes place there arises some form of consciousness. The residua of sensory stimulations are the cortical substrate of imagery. With further development certain images come to represent possible conscious data. This is the nucleus of the thought process.

Now the thing about which we at present are not at all agreed is the definition of the objects to which our thought processes refer. To some these objects are data of experience. To others they are realities outside our experience, but to which our ideas refer. Hence it would seem that before we can come to any understanding of the thought process we must attain to some clearness of vision on the nature of our objects of thought. How can we come to any agreement on the function and nature of thought before we shall have agreed on some definition of the objects of experience to which our thought processes refer? Thus if one agrees with Professor James's treatment of the perception of objects one has to agree with his discussion of thought unless one makes a distinction between psychological thought and metaphysical thought.

Is it not possible to keep out of the discussion questions of ultimate reality and absolute truth, and work toward some understanding of the nature of the thought process and the reference of our ideas toward what we call objects?

That there is a purpose controlling the world is a practically universal religious conviction. But to inject these matters of faith into a technical scientific discussion of the nature of our human thought process would seem to be a confusion of points of view. Thus in Professor Royce's book on "Loyalty" we are told that to deny that we have absolute truth "is simply to say that the whole truth is that there is no whole truth"! Thus the humble investigator of the thought process is made to swallow a theological formula as the basis of his view of human knowledge! The scientific temper has nothing to do with this "whole truth." It is a theological assumption which springs out of the emotions and the will. This is all right in its place. But injected into a scientific analysis of the processes of human thought it can do only harm. Such expressions as, "We seek a city out of sight," and, "We get hints

of a higher unity," we can readily assent to as expressing our religious faith, but they do not in the least throw any light on the nature of human reasoning.

The absolutists are forever affirming that ideas do more than lead to certain forms of experience. Perhaps they do. It is the business of the absolutists to point out precisely how they do copy reality outside our experience. It would be more effective to make the thing clear than to continue to assert that they do more than lead to certain experiences. James is sun-clear in his definition of truth. He may be wrong. But we have not been shown what more ideas can do. To predict new experiences on the basis of generalizations from the past is the only kind of reasoning that some of us can understand. We know what we mean when we say that ideas symbolize experiences. There may be another kind of knowledge which reveals the existence of atoms as realities independent of our experience or of God as Professor Royce's "higher unity" of individual experiences. But many of us take these realities on faith. We simply can not get any farther. Are not realists, spiritualistic and materialistic, assuming that we know what we do not know? Why should we profess to know what we do not know? Everybody believes that reality in some form, spiritual or material, exists independent of human experience. But how can we *know* its nature? If knowledge is a cross-section of experience, we can not. If knowledge is not a cross-section of experience, what is it? It is for the absolutists to tell.

Very truly yours,

J. D. STOOFS.

IOWA COLLEGE,
September 9, 1908.

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

GENTLEMEN: I should like to call attention to an error in Professor Mast's review of my "The Animal Mind," which appeared in the JOURNAL for August 13. I am quoted on page 469 as saying, "Attention, in its simpler form, seems to be met with even in the lowest living organisms; but it seems unlikely that attention in the final form, in which the focus of attention is occupied by an idea or train of ideas, occurs among lower animals." The first part of this sentence is not to be found in my book, and I should be unwilling to subscribe to it. A part of the concluding clause is also not mine. The sentence as I wrote it stands thus: "It seems unlikely that attention in this final form occurs among the lower animals."

Very truly yours,

MARGARET FLOY WASHBURN.

VASSAR COLLEGE,
September 21, 1908.

M. HENRI BECQUEREL has bequeathed to the Paris Academy of Sciences the sum of 100,000 francs, in memory of his grandfather and father, who

were, like himself, members of the academy. According to the bequest, to the academy is left the "responsibility of determining the best use which it can make of the interest on this capital, whether by creating an endowment or prize, or by distributing this income in a manner calculated to encourage the progress of science."

PROFESSOR CHARLES H. JUDD has been appointed dean of the school of education and head professor of the department of education in the University of Chicago. Professor Judd will remain at Yale during the current year, and take up his new duties at Chicago in June, 1909.

DR. HENRY JONES, professor of moral philosophy in the University of Glasgow, is making a short visit in this country. During the week beginning October 5 he will lecture at Cornell, Columbia, Princeton, and Yale, sailing for Europe on the 10th.

IN writing to the *Nation*, under date of September 24, Professor George A. Coc states that "the report that I have accepted a chair in Union Theological Seminary is unauthorized and untrue."

PROFESSOR MARGARET FLOY WASHBURN, of Vassar College, has been promoted from associate professor of philosophy to professor of psychology.

LEIPZIG UNIVERSITY will celebrate the five hundredth anniversary of its foundation in July of next year.

THE International Congress of Philosophy will hold its next meeting at Bologna, in 1912.

Erratum. In Professor Urban's review of Professor Münsterberg's "Philosophie der Werte," which appeared in the issue of the JOURNAL for September 10, on page 527, seventh line from the end of the review, for "aware" read "unaware."

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE CHICAGO "IDEA" AND IDEALISM

EVERY fundamentally new attempt at reconstruction in science involves, to some extent at least, a new terminology. The old words of a language may still be employed, but they are made to carry new meanings, and it is the task of the attentive reader to keep from slipping back into the old meanings when he would understand the new message. This commonplace reflection is suggested by the present status of the pragmatistic controversy. Professor Dewey has repeatedly complained that his critics have failed to understand him because they have interpreted what he says as if he were employing old words in their old meanings. The complaint is amply justified, and, of course, this misunderstanding is a bar to any true appreciation of his instrumental logic. There is no word which is apt to give more trouble to Professor Dewey's readers than the word "idea." The fault is not Professor Dewey's, for he has taken great pains to make clear just what he means by the term. But what he means is so different from what is ordinarily meant that it is no wonder that his critics have failed to remain true to his definition when they try to appraise the value of his statements about ideas. For instance, when one finds this challenge thrown down by Professor Dewey: "Do ideas present themselves except in situations which are doubtful and inquired into?"¹ one is apt to take up the gauntlet with confident heart, for does not every one know that ideas do present themselves constantly in situations which are untroubled by any doubt? But the cautious reader knows that the gauntlet has a string attached to it and may not be lightly taken up.

In this paper I shall try to state as best I may the new meaning of idea in Professor Dewey's writings, and then ask some questions which this new meaning suggests. But before doing this, let us take a brief survey of the current meanings of the term. The word idea has at least two quite different types of meaning in common use. These two meanings can be traced back in English to Locke and Hume. They may be called the inclusive and the exclusive significations of the word. Locke used the word of everything of

¹ This JOURNAL, Vol. V., p. 378.

which we are conscious when we think; Hume used it in antithesis to "impression." And since their days, not to go farther back, both these usages have been classic. Of course, the particular nuance which the term has in either sense is determined by the views which are held in regard to the genesis and the function or reference of ideas; and these views are various. For instance, Lotze, like Locke, set over against the world of ideas, used inclusively, a world of reality outside of ideas, which ideas are to deal with as well as they can: Professor Dewey has shown with masterly skill how Sisyphean is the task which is set for ideas in this scheme of things. The idealist, also using idea in the inclusive sense, denies that there is any reality that is not idea; he has, therefore, no need to make ideas adjust themselves to a reality which is not ideal: the only adjustment necessary is among the ideas themselves. Hume, taking the term in an exclusive sense, finds, however, no work cut out for ideas in the fact that they are not exhaustive of reality. They carry no reference to the other class of realities. All they have to do is to be more or less lively, and the laws of association manage this business for them. The psychologist of the present day is apt to use the word in the exclusive sense fixed by Hume, but, following the hint given by Hume himself, although not developed by him, the psychologist regards ideas as those elements in experience that are due to central stimulations of the cortex, as opposed to sensations which are due to peripheral stimulations. The "plain man" uses the term in a manner similar to that adopted by the psychologist, although, of course, he has very vague notions of the basis of the distinction between idea and sensation. I think that it can properly be said that the psychological employment of the term is merely a refined and critical adaptation of the vulgar use. Now, when ideas are used in this way in antithesis to sensation, it may be recognized that they not only are occurrences accounted for by their connection with brain-processes, but also are in some way the vehicles of knowledge. They have not only a structure and a genesis, but also a function and a value determined by the success with which they perform their function. This function is knowing. The examination of this function and of the value of ideas in this functional process is generally turned over by the psychologist to the epistemologist. If the latter takes up the problem on its own account and ignores the psychological problems of structure and genesis, we have then two abstract sciences standing side by side, much to the scandal of pragmatists and humanists. The division of labor is regarded as an ultimate and hopeless scission of the material taken in hand. The living unity of experience is dissected into dead members, and where is the Isis to gather up the scattered anatomy

of experience, and where is the Ezekiel to prophesy upon the dead bones that they may live? There is no goddess in Egypt and no prophet in Israel in these days.

But we have the pragmatist who can see to it that the default of supernatural beings shall not be fatal to natural human knowing. He employs an ounce of prevention where they would have resorted to tons and tons of miraculous cure. He would have no division of labor between psychology and epistemology, for, of course, division of labor is division of what you labor on, and this is to be avoided at all hazards. One unspecialized type of laborer is to be employed on the work, and this secures unity of finished product. Assembling is an impossibility in manufacture; hence do nothing that will make it necessary. The logician can do all the work and keep the parts together from start to finish.

This, of course, necessitates a new terminology in the factory. The real trouble with the antiquated method is found in the kind of distinction that is made between "ideas, meanings, thoughts, ways of conceiving, comprehending, interpreting facts," "suggestions, guesses, theories, estimates," etc., on the one hand, and "facts," "objects," "data," and what not, on the other. These are not forever fixed in their eternal state; else they have done with things below. They are simply instrumental distinctions, functional variants, and are just what at any time you take them to be. Of course, even thus, you can not get rid of the distinctions, and so can not get rid of division of labor; but you have a different kind of division of labor. The division here falls upon the material which the logician studies, not upon the students of the material. As this material is living reflective experience, it can temporarily endure all sorts of tensions and distractions, taking these up and working them over till it effects a reorganization. Indeed, without this tension and distraction, there would be no thinking life. But the student of this life must not divide what in life is connected even in its division. So that, while in this new way of ideas "datum and ideatum are divisions of labor, cooperative instrumentalities, for economical dealing with the problem of the maintenance of the integrity of experience," the logician must recognize that either "is a sheer abstraction from the standpoint either of the organized experience left behind, or of the reorganized experience which is the end—the objective."² "Thus the distinction between subjectivity and

² "Studies in Logical Theory," p. 52. The second quotation is taken out of its narrower context, where the subject of the sentence is a particular datum, namely, "Mere change of apparent position of sun, which is absolutely unquestioned as datum." But the larger context, I think, justifies the use to which I have put this clause.

objectivity is not one between meaning as such and datum as such. It is a specification that emerges, correspondently, in *both* datum and ideatum, as affairs of the direction of logical movement. That which is left behind in the evolution of accepted meaning is characterized as real, but only in a psychical sense; that which is moved toward is regarded as real in an objective, cosmic sense."³ The psychic, the ideal, on the one hand, the cosmic, the objective, on the other, are thus nothing but shifting values in the ever growing unity of experience. Just what shift is made is determined by the problem and its solution in any definite concrete situation. When an intellectual problem is taken up in experience, there is always something that for the time being is accepted as fact—this is the datum; there is something else which is suggested as somehow appertaining to this fact—this is idea. The idea may be subsequently rejected in the outcome of thought's travail—it is then definitively for this occasion characterized as merely psychic. On the contrary, the suggestion may be accepted; it then merges with the datum, after the latter has been correspondingly changed to receive the suggested content, and it ceases to be an idea for the occasion and becomes objective cosmic fact.

Not only is this shifting according to the concrete emergencies and the concrete achievements of the logical process a fate which befalls ideas and data, it likewise draws into its kaleidoscopic field even the terms sensation and image. "One of the aims of the 'Studies in Logical Theory' was to show . . . that . . . such distinctions as sensation, image, etc., mark instruments and crises in the development of controlled judgment, *i. e.*, of inferential conclusions."⁴ Whether any experience is to be considered sensational is not determined then by resort to psychophysical investigation—except, perhaps, where the problem is psychophysical and not logical?—but by consideration of the harmonious outcome of the previously disturbed situation. We are not told whether sensation is synonymous with accepted fact, but we are at any rate warned not to consider it "in terms of the psychology which obtained in the *critic's* mind."⁵

Now these are perfectly clear distinctions, and although I may not have done justice to the clean-cut thought in which this view is worked out, still I hope that I have blocked the distinctions out sufficiently for recognition by their author and by others. But what follows? I think that we must agree that one thing follows; namely, the necessity of giving just the kind of answer that Pro-

³ *Op. cit.*, pp. 53-54.

⁴ This JOURNAL, Vol. V., p. 376.

⁵ *Ibid.*, p. 377.

fessor Dewey gives to the five sets of questions which he asks on page 378 of the current volume of this JOURNAL. According to this new definition of ideas and of facts, ideas do *not* present themselves except in situations which are doubtful and inquired into. They do *not* exist side by side with the facts to which they refer *when* these facts are themselves known. They do *not* exist except when judgment is in suspense. They are *nothing but* the suggestions, conjectures, hypotheses, theories, tentatively entertained during a suspended conclusion, and so forth and so forth. *These answers are determined by the definitions already given of fact and idea*, and no examination of actual thinking experience is necessary for making the appropriate reply. All one has to do is to examine the definitions of the terms used, just as in Euclidean geometry all that one has to do in determining whether parallel lines meet is to consult the definition of parallel lines. The scheme is beautifully simple, and if you adhere to it, you get rid of some very disagreeable questions which force themselves on you if you refuse to adopt it. But if the questions referred to are asked with a view to determining whether the new way of ideas comports with facts, then we have a different matter on our hands. Into this question I can not go at present.

However, there are some questions which force themselves on me when I try to accept the new scheme on which the definitions rest. Is not the scheme a thoroughgoing idealism, and a subjective idealism at that? But to guard against misunderstanding in putting the question, let me hasten to say at once that I do not conceive the point of view underlying these definitions to be idealistic, if the connotation of "idealistic" is adapted to that of "idea" in the scheme. The "Studies in Logical Theory" admits the existence of facts as well as of ideas, each defined in a special way. Professor Dewey, therefore, has a perfect right to repel the suggestion that his scheme is idealistic, if idealism is defined according to "idea" in that scheme. We all remember how mildly indignant Bishop Berkeley used to get when the suggestion arose that his way of ideas did away with matter. He easily showed that it did no such thing. Did not the whole choir of heaven and furniture of earth find its place in his idealism, and what is meant by matter anyway but just such things as make heaven vocal and earth comfortable? But I believe that it is fairly settled these days, if it were ever doubted, that the fact that Berkeley's views admitted these material things did not make his doctrine non-idealistic. There is a *current* definition of idealism according to which we gauge systems as idealistic or not. Is Professor Dewey's system idealistic *according to this definition*? Idealism seems to be generally applied to any theory which regards all

reality as embraced within experiences or within Experience. It is the view that recognizes no residual reality uncatalogued after the inventory of all experience is taken. The thinker called idealistic may not even use the term experience; but we can see from his writings whether, if he had used that term as it is now generally used, he would have been willing to say with Mr. Bradley: "I am driven to the conclusion that for me experience is the same as reality. The fact that falls elsewhere seems, in my mind, to be a mere word and a failure, or else an attempt at self-contradiction. It is a vicious abstraction whose existence is meaningless nonsense, and is therefore not possible."⁶ If any thinker endorses these words, he is an idealist. Now when any of Professor Dewey's critics calls him idealistic, the critic uses the term in this current sense. When Professor Dewey repudiates the epithet, does he use the term in another sense? If so, are they not both right, each in his own way? Professor Dewey hardly refutes the claim of his opponent by failing to meet the claim on its own grounds. A clear unambiguous answer from Professor Dewey to the question whether he is an idealist in the current sense of idealism as defined above would, I am sure, make his view much more intelligible. Most of his readers have found him idealistic, only to be told that they are miserably mistaken. This has left them miserably nonplussed. If Professor Dewey thinks that it is too much of an accommodation to the weakness of his readers to answer the above question, he can at least tell us what *he* means by idealism, when he denies that he is an idealist. And if in the definition he employs the term *idea*, he can tell us whether that term is to be taken in the sense of the "Studies in Logical Theory."⁷

But, of course, when experience is used in the definition of idealism, we have another difficulty. What is meant by experience? The ordinary man in his ordinariness uses this term as in the first instance not inclusive of all reality. For he seems to find experience a very shifting thing. What is part of experience at one time is not part of it at another. Even if experience be used in the most inclusive sense as embracing ideas, guesses, hypotheses, theories, as well as facts, still these, of course, are in constant flux, as

⁶ "Appearance and Reality," 2d edition, p. 145.

⁷ While I am asking questions, I should like to put another: What does Professor Dewey mean by "rationalism" and "rationalistic"? The rationalism of the *Aufklärung* we think we know, and we know that we are not rationalists of that sort; but we do not know whether we are rationalists in this seemingly new and derogatory sense in which the term is frequently used in his recent writings. It is natural that we do not like to be charged with being rationalists without being allowed to plead guilty or not guilty with the law of the term before us.

pragmatism tells us. Not only do these unstable beings chassé backwards and forwards in the figures they describe, but they often chassé incontinently out of these figures altogether. When this evanishment occurs, the ordinary man is apt to say that the wayward beings are no longer parts of the experience. Experience goes along without them. Yesterday I saw a certain stone by a brookside. To-day I remember that I saw it. In the interval I neither saw it nor remembered seeing it, nor had the least inkling of its presence. *Abiit, excessit, evasit, erupit.* Its eruption was clean out of experience. Experience, thus used, is a most labile thing; but this very slipperiness and instability is a part of its essence in ordinary thought. But there is another meaning of the term, an extraordinary meaning, but nevertheless prevalent in philosophical writings. Out of this Experience there is no exit, not even by way of fire-escape. It does even more for what we in our finitude and mutability lose from time to time than what the Grecian Urn does for the lover and his lady. The urn stereotypes just one moment of their lives. "Forever wilt thou love and she be fair." But Experience stereotypes all the moments of all lives, everything that was or is or ever shall be, upon the bosom of a flowing river, where it is both fixed and fluid. Either kind of experience has its difficulties for experience, although we are told that neither kind has any for Experience. But either kind is just what it is, not what it is not; it contains just what it contains, not what it does not. Professor Dewey will have none of the capitalized sort, yet he will have nothing that is not experience. But as we have seen, lower-case experience has no room for vanished stones, except as memories which themselves vanish most of the time; and this seems to be the reason why the humanistic pragmatist turns stones into self-supporting experiences. In this Professor Dewey disdains to follow the humanist. Now, the question is whether Professor Dewey uses experience in some other sense than one of those above mentioned. If he does not, is he not a subjective idealist? He is full of admiration for the "miracle" which the epistemologist works in getting his ideas united with fact; the epistemologist would feel justified in retorting the admiration if the pragmatist should attempt to make fragmentary and elusive experience, without a purchase in something more permanent, bring out of non-existence just what it always needs for the solution of its logical puzzles. But if what has disappeared from experience still lives on in spite of its disappearance, and yet does so in no eternal Experience, then how does this way of taking experience and its needed complement differ from strictly objectivistic realism? But how, according to the "Studies," can what vanishes from experience continue to exist except as a sheer (unwar-

ranted!) abstraction from the standpoint of organized or reorganized experience?

There is one further difficulty that I wish to lay before Professor Dewey in connection with his new distinction between fact and idea. I suppose that most of us accept the other side of the moon as a fact, on a par *as fact* with this side of it. If we do not accept it, there seems to be considerable disturbance in experience, which, I believe, will continue in most of us till the other side gets accepted. Then it becomes "fact." This fact, while as accepted fact it is on a parity with this side of the moon, yet as experienced fact seems to differ considerably from it. I can see the one; I can not see the other. Grant that the term sensation should lose its ordinary acceptance and become merely a term to mark an instrument or crisis in the development of inferential conclusions. Still there is, after the conclusion is reached that the moon has two hemispheres, a considerable difference in our experience between the two hemispheres, and this difference does not seem to budge however we may pry upon it with changed meanings of terms. The realist, following the ordinary usage, says that while there are two lunar hemispheres, only one can be immediately experienced, and the other is accessible to us only by means of idea. If he is forced to accept the Chicago lexicography he finds himself at a loss to express himself on this point, but unfortunately he does not find any loss of the fact to be expressed. What is pragmatism going to do with this difference? If it ignores it, can it keep peace with science—a peace it is proud of proclaiming as one of its achievements? Science makes a thoroughgoing distinction between observation and inference, between empirical facts and scientific constructions upon the basis of facts. Now it is one of the great merits of the "Studies" that it has pointed out the ambiguous nature of much of what is taken by science to be fact and what is taken to be theory. But may not the ambiguity be pressed just a little too far? What we take to be a satellite, 240,000 miles distant from the planetary earth, may after all not prove to be what we think it is. But suppose that such a change in scientific construction should ever take place? All is not lost from present scientific fact; there remains the fact that there is a bright something occasionally in experience, growing from slender crescent to full orb. This fact antedated Ptolemy and has long survived Copernicus, and will, I think, survive Copernicanism if the latter, having had its day, should ever cease to be. This fact may come to be interpreted as anything you please, and get accepted as that thing; but it will be there to be accepted somehow whenever any one constituted like us opens his eyes and turns them in the right direction at an opportune time. This kind of fact, and there

are many of them, forms the inexpugnable datum of thought. It is the givenest of givens, *datissimum datorum*. Thought does not seem to have anything to do with the making of it—although the idealist has another account of the matter. Nor can thought do much^a in the way of changing these *datissima*. Not only do they constitute the prime starting-point of all scientific problems, but they retain their pristine character throughout the thought process and after thought has done its perfect work. While ideas and data of a secondary order play their game of hide-and-seek with each other, these data of the first order are in the game, but not of it. They give to one lunar hemisphere a primacy which no terrestrial thought-reorganization can give to the other. Now a philosophy which keeps close to experience can not well ignore this distinction between the two kinds of data. Bow the difference out of the front door by refusing to recognize it under its old style of difference between sensation and idea, and it will come in at the back door unnamed, but no less obtrusive. Can logic afford to ignore it? If it does not ignore it, can pragmatic logic fix it somewhere, mid this dance of plastic circumstance which it portrays so well, but which the old logic would fain arrest; can it fix it there without giving up the thorough plasticity of circumstance?

EVANDER BRADLEY MCGILVARY.

UNIVERSITY OF WISCONSIN.

CRITICAL REALISM AND THE TIME PROBLEM. II.

IN a previous article I sought to show that real time is identical with change in a self-conserving process; that the puzzle of permanence or identity and change no longer balks advance when "process" is made the prime category; that a complete reversal of outlook in modern times makes the adoption of a "process view" imperative and forces us to discard an identity based on static permanence and to substitute, in its stead, organization—organization which is maintained immanently and which is neither changeless nor an entity; also that change is greater the more intricate, differentiated, and complex the organization.

I wish now to indicate how such a position can be used to explain the individual's time-experience and time-construction. Before I attempt the explanation of this extremely difficult problem, however, I would like to make as clear as possible the theory of knowledge bound up with, and supporting, critical realism. The

^a How much thought can do in this matter is an interesting question which we can not enter into here.

connection of the individual with the larger process of which he is a freely-moving part must be realized before the conclusions of the first article can be seen to have definite bearings. Since, then, comprehension of the ensuing discussion of time will depend in large measure upon a grasp of the main principles of critical realism, I state these principles, and as concisely as is compatible with clearness.

First, the individual's experience is a changing "microcosm"; and logic is concerned with the study of processes within this "microcosm," especially with the inferential relations among thing-experiences and with the development and significance of meanings and distinctions, such as, physical and psychical, matter and consciousness, etc. In short, logic is not metaphysics, but clears the way for metaphysics, and is not directly interested in solipsism or pluralism. Logic "might well be written from the standpoint of solipsism." Elsewhere I have protested that a large share of the new realism is a logical realism which has at last overcome the confusions due to the special view-point of psychology.

Second, the protest of Professors Taylor, Dewey, Bawden, and others, that the mind-body relation is a methodological problem, more or less an artifact, holds against the reification of such contrast-categories as the physical and the psychical, matter or energy, and mind. These dualisms are developed in the impersonal logic of psychology and physics and have a methodological, not an ontological, import. On the other hand, the relation of the individual's experiencing to the rest of him which we call his body, as a part of reality, is *the vital metaphysical problem and the key to critical realism*.¹

Third, in order to understand critical realism, the individual's experience must be viewed as incarnated in his body looked upon as an existence functioning in relation to other existences. I have designated this view a *functional identity* or *variancy* view; and, by showing that experience is not a "stuff"—since it is not con-

¹ Since my solution of the mind-body problem emphasizes the reactive unity of the whole individual, just as Professor Dewey's does, a statement of the main difference may be worth while. This can best be brought out in connection with the note (p. 65) in his essay in the James "Festschrift." "It is interesting to note how the metaphysical puzzles regarding 'parallelism,' 'interaction,' 'automatism,' evaporate when one ceases isolating the brain into a peculiar physical substrate of mind at large and treats it simply as one portion of the body, as the instrumentality of adaptive behavior." This is distinctly the objective, biological, outlook, and might well have been written, say, by Jennings. Instead of passing through and beyond subjectivism to an adequate conception of the individual, Professor Dewey has taken refuge in the impersonal objectivism of science.

served—I have tried to prove that this position does not conflict with the conservation of the capacity for activity on the part of reality (conservation of energy).³

Fourth, the condemnation of experience-in-general and the assertion that experience is always an individual's experience and connected with a body, lead to a frank pluralism in regard to experiencing. Individuals have distinct experiences, just as they have different bodies. Their bodies are, however, in dynamic continuity with each other and with other existences.

Fifth, the terror of solipsism is absolutely uncalled for and results from idealism reenforced by the "states of consciousness" fallacy and by a false conception of knowledge. Let us frankly recognize, as *e. g.*, Cornelius does and as James used to do, that we can not have another's experience actually, any more than we can be a stone or a tree. I am afraid that philosophy has often lacked the courage to face squarely up to facts and has, thereby, missed the chance of solving her problems. A genetic study of how our knowledge of others is obtained—showing how it depends on the interpretation by each of the ways of acting of the bodies of other people, including here the vocal organs—would have led to a correct idea of what knowledge means in this case, and would have prevented the puzzlement called transcendence of experience, which critical realism is supposed to require. The discussion of *ejects* would take on a healthier tone if the genetic attitude were adopted. I sought to do this some time ago and arrived at an interesting result; viz., that another's body becomes an *eject*, just as his experience does, and that the two always go hand in hand.

Sixth, the transcendence of an individual's experience—obviously I will have nothing to do with such a phrase as *transsubjective reference*—which has perplexed so many, is a pseudo-problem. In the first place, experience is looked upon semi-spatially when transcendence is talked about. This is the curse of a still-lingering "states of consciousness" outlook. One is supposed—in a dim, groping way—to perform a magic act; a jumping out of one's spiritual skin is hesitatingly invoked. In the second place, *knowing* an existence is regarded as a sort of *being* that existence, or, at least, a mental hand is conjectured to touch the existence with a ghostly, yet reassuring, caress. A study of *experiencing* as incarnated in the body, as an expression of the body in its dynamic relations with other existences, would have led to an apprehension of the unreality of the problem. The correct and illuminating questions are: What is the function of experience? What can it be expected to tell us of the existences around the body? I recognize how important this

³ Cf. *Psychological Review*, July, 1908.

problem is, if critical realism is ever to shake itself loose from the worrying attacks of idealism and to become more than a bewildered protest. I believe that experience tells us the function, structure, and relations of existences, and that, in doing this, it is not compelled to transcend itself. My present purpose forbids me to enter further into this field at this time.

This is my *credo*. I hope it may give the setting of the individual, which is needed.

When this view of the individual as a highly organized process in dynamic continuity with other processes in various grades, and kinds, of organization is once grasped, the time problem speedily takes on a new light. Change is characteristic of the individual, but so is organization and the conservation of past activities which it implies. Now, if change appears in experience as time-perception, may not time-construction represent the side of conservation and organization? Though consciousness can not abolish change—for that, as Hobbes saw, would be suicidal—its survey becomes more and more comprehensive. Experiencing, incarnated in the individual, reflects this organization in systems of meaning, values, and time and space constructs. This inevitable parallelism can not be understood if the alienness of consciousness to the body is held. It is in this sense alone that Bosanquet is right when he says, “the consciousness for which there is time has begun a process which tends to abolish time.”³ Experience, like reality, has, as we would expect from our position, the two aspects of change and relative persistence, but in neither case does this fact imply permanent entities, whether “bits” of consciousness or “bits” of matter.

The psychology of the movement from perceptual to conceptual time, I shall, in large measure, take for granted. We construct nature in time after the same fashion that we construct it in space. Since man has the power of initiative, *i. e.*, is free moving, he is able to bring himself into relation with various parts of reality and is thus empowered—given his reasoning and constructive or organizing faculty—to establish controls to aid him in a larger and more perfect activity. I refer to maps and knowledge of topography as well as to inventions, such as motors, railroads, etc., which consist in the use of the functions of existences in a directed way. In like manner, there is every practical reason for him to throw his experiences into the order in which they occurred and thus to erect an objective (logically objective) system which seeks to correspond to the course of the reality-process itself. The need of bringing his past experience to bear upon present problems puts a premium upon this endeavor. Recent discussions of causation have emphasized

³ “Logic,” p. 267.

this practical motive almost *ad nauseam*. When the conceptual world of succession outreaches his own memory, the persistence of "form" in reality is fruitfully employed by inference; fossils, strata, historical documents tell their tale to the individual's inquiring mind. Communication with others, the reading of books, the whole social tradition, thus achieved, give aid.

There can be little dispute about the above sketch of our space and time construction. The disagreement will most likely arise in regard to its metaphysical interpretation.

Memory, as Hering has well shown, must have its basis in the nature of reality (he as a scientist speaks of matter). But memory in reality, as we saw in the first article, is identical with persisting organization; and man's memory is not a resurrection of a dead past, but a *function of actual organization as conserving past functioning*. This view is made evident by the fact that disorganization or dissociation involves loss of memory. I shall presume that every one to-day admits that memory is not a resurrection of a past experience as such. Here, as elsewhere, it is seen that stereometrical organization dominates over any linear idea of time in reality.

It were well, at this point, to notice that the "present" has two meanings in experience, which are constantly confused. As the "specious present," it represents the grip of attention, the relative persistence of functioning. Within this specious present—which, by the way, requires no synthetic ego for its explanation—differences exist which become clearer upon analysis and may then be designated "contrast-meanings" of succession. These are the "now," "no longer," and "not yet" of current psychology. Any sharp distinction between perception and conception tends to produce an unreal problem here; for, just as our ordinary perceptual space is now tinged with the more conceptual space of science, so perceptual time seldom has its naïveté. Immediate experience must be our refuge. As we grow older, whether as a race or as individuals, we live in a larger world, spatially and temporally. This means that in our reflective consciousness an objective time-order has arisen, freed so far as possible from distorting perspective, and that, within this time-construction, the present, not as an undissectable moment, but as a chosen series of events, has contrast-relations with a past and a future. Such a past or a future is as real as the present contrasted with it, so far as presence within my experience is concerned. Yet all the while these times are objects of thought within a continuously changing "specious present." Since, in ideational thought, our interest is not directed towards the transitions of our experience as such, but towards the ideas, and since these ideas are of wide scope and fairly stable import, the awareness of change is

not prominent as it is in more distinctly perceptual experiences, as, e. g., in rhythms. "Every experience thus holds in suspense within itself knowledge with its entire object-world, however big or little."⁴

This tremendous complexity of immediate experience has often led idealists astray. Bosanquet and Taylor furnish good illustrations of this error. Their discussion of causation, in which they seek to identify cause with complete ground, and thus exclude temporal relationship between the cause and effect, is shot through with this misapprehension; as is likewise all reification of logical validity. Idealism can not escape the flow of immediate experience itself; change, transition, variety must be acknowledged. Because certain aspects of time on the ideational level can best be studied in connection with causation, and because, moreover, they do not affect our main conclusions, I shall postpone their treatment until I take up critical realism in its relation to causation.

Certain philosophers have maintained that the future is in some sense real.⁵ This position may depend on a confusion between the present as the specious present and the present as a contrast-meaning in a time-construction; but it usually arises from an interest in an absolute for whom time, as we experience it, is appearance. Now critical realism has no absolute experiencer, and so this problem does not arise for it. Critical realism also escapes the puzzles of a world teleology, which theology always tangles herself in. To say that the future exists *now*, would be a contradiction for which there is no motive in naturalism. Much more effectively than pragmatism, because squarely and candidly, does a plastic naturalism meet pseudo-problems. No support can be obtained for the future in the reality-process which includes the individual; for, in this realm, time is identifiable with change, and even the word "present" is metaphorical and signifies the organization existing during a given rhythmical movement. Space and movements in space dominate the formation of objective or common time.

Is time, then, mere appearance? Certainly not; this term has no metaphysical, but only a logical, significance for critical realism. The vital distinction for this latter is the experience of the individual in contrast to reality as a larger process which includes this individual. No note of depreciation enters into this contrast, such as enters into that of appearance and reality, so popular with absolute idealism. The individual must be and remain the point of departure for critical realism, but an individual whose tremendous complexity and scope are no longer forgotten.

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⁴ Dewey, "Reality as Experience," this JOURNAL, Vol. III, p. 253.

⁵ V. Taylor and Royce.

REVIEWS AND ABSTRACTS OF LITERATURE

L'évolution créatrice. HENRI BERGSON. Paris: Felix Alcan. 1908. Pp. 399.

This book is the third of M. Bergson's important philosophical works. The first, the "*Essai sur les données immédiates de la conscience*," is an arraignment of determinism, and of philosophical intellectualism generally, by way of a critique of physical science, or knowledge of the immediate data of consciousness. In this earliest work, the theory of real duration, the foundation of the Bergsonian philosophy, is enunciated, and in the light of it intellect is shown to falsify the nature of consciousness in applying to conscious states such categories as intensity, multiplicity, organization. Each of these categories, in its traditional application, is a quantifying and a spatializing of consciousness. The intensity of a state is nothing but the state itself; the state is pure quality or heterogeneity, incapable of measure and degree. The multiplicity of conscious states has no analogy with plurality. Plurality is simultaneity and juxtaposition; but conscious states prolong each other in an interpenetrating flow. Finally, the organization of conscious states is nothing like the traditional systematic "coordination" of associationistic psychology. It does not lend itself to laws and principles. It can not be adequately expressed by words, nor artificially reconstructed by a juxtaposition of simple states, for it is always an absolutely new and original phase of our duration, and is itself a simple thing.

The "*Essai*" thus charges intellect with failure to know the sample of reality that we have in our own existence. The world of the intellectual categories, the physical world of quantity and space, is another sphere of existence than the world of consciousness and life; its ways are not the ways of life and motion. What physics calls motion is nothing but a relation of points; its study is the study of immobilities.

Bergson's second philosophical work, "*Matière et mémoire*," finds that psychology as a natural science is as narrowly intellectualistic as physics, spatializing the duration of mental life, juxtaposing and interrelating its "states" as discrete entities, thereby falsifying its true nature. The central theme of this book is the relation of mind and body. The body is an instrument of action only, the brain an apparatus of transmission and modification of motion, converting incoming disturbances into outgoing actions. Perception is the virtual or preparatory stage of the subject's activity on things, all that might be, of action on physical environment. Environment obstructively modifies the activity of mind, and as the mind approaches the ideal limit of activity unimpeded by matter, its state is nearer and nearer the state of dreaming.

This idea of the variation of cognitive states between two limits, dreaming and action, shall serve us presently in an attempt to understand more clearly the distinction so much insisted on in all Bergson's writings, and especially in "*L'évolution créatrice*," between what Professor James has named knowledge-about and acquaintance-with. The latter Bergson

regards as instinctive, not thought, but lived; while knowledge-about is the merely instantaneous and external view of reality with which intelligence vainly tries, "cinematographically," to reconstruct the real flow.

"*L'évolution créatrice*" amplifies the main theses of the earlier works, and applies, to biology, the same criterion of reality, namely, duration, by which physics and psychology have been found unproductive of any knowledge which philosophy can recognize. A science of biology can only be knowledge of the inert. Its study of species, forms, or essences is devitalized by ignoring the real efficacy of time in evolution. Every evolutionary theory is and must be mechanistic or finalistic—in either case intellectualistic. Having no hold on time, it affords no acquaintance with the reality of the evolutionary movement.

Before going into the matter peculiar to this book, it will be well to attempt a summary account of that idea which is the center of Bergson's thought, his idea of real duration, with its general bearing on his metaphysics and epistemology.

Bergson regards knowledge of oneself as a privileged case of knowing; oneself, he thinks, is the sample of reality which best serves for an acquaintance with the nature of reality in general. "The existence of which we are best assured and which we best know is unquestionably the existence of ourselves, for of all other objects our notions might be regarded as external and superficial, while we perceive ourselves inwardly, deeply" (p. 1).

Our existence is a perpetual flow of transition. That we think of our states as distinct from each other is due to the fact that reflection on one's own existence is, unlike the flow of that existence itself, necessarily discontinuous. It is only now and then that motives arise which turn the attention to the self as an object, like others, for examination. The flow of change is not uniform, to be sure. It is quite imperceptible to our reflective attention most of the time, but if it ever ceased, we should at that moment cease to exist. Only the relatively sudden and interesting periods of transition get our attention. Then we see a new "state of consciousness" which we add to the others that we have mentally strung together in a temporal line. So we conceive of our history as the sum of elements as distinct as beads on a string.

Bergson makes two observations regarding this intellectual view of oneself: first, it is a false view of the nature of the sample of reality on which we must rely, ultimately, for true knowledge of reality in general; and second, so far from causing practical difficulty, this view, false though it is, is the only one which makes oneself a possible object of one's own activity, or even of logical thought. For any possible object of action or of logical thought is a spatialized object, distinct, external to other objects. It has definiteness and geometrical relatedness. It is a term, and has a name. Try to define the self, or even to name it, and you falsify its true inner nature. You really define and name only a static, spatialized symbol of it instead of itself. Yet without definition and designation it gives no hold to action or to thought.

This intellectualistic view of the self eliminates the peculiar characteristic of its reality, namely, its duration, or the flow of its change. Like a snowball, accumulating its substance as it rolls, duration goes on preserving itself in incessant change that accumulates all its past. "Time," Bergson says, "is the very stuff the psychological life is made of. There is, moreover, no stuff more resistant or more substantial" (p. 4).

Life and inertia or matter are two antagonistic principles or tendencies. Life is the positive and active principle; reality and duration are predicable only of life. Inertia is an "inversion" or "interruption" of life; its value is negative to life and to reality. "All that appears positive to the physicist and to the geometrician would become, from this point of view, interruption or inversion of true positivity, which must be defined in psychological terms" (p. 227). Matter is a diminution of reality in much the same sense as that in which the reality of the Platonic idea suffers diminution under the influence of the principle of not-being, resulting in a world of sensible experience or of appearance. Bergson points out that the real in Plato is the timeless, motionless, definite idea, and the relatively unreal is the ever-changing "infinite" or indefinable datum of experience, to which duration is essential. Bergson reverses the Platonic metaphysics: reality is the ever-changing and indefinable; rather, it is change itself ("... there are no things, there is only action. . . . things and states are only our mind's views of becoming") (pp. 269, 270). The principle antagonistic to reality gives rise to the timeless, definite concept, which is a view or appearance of reality operated by intelligence in the service of action. As our practical interests break up the continuum of time into discrete states, so they break up the continuum of matter into distinct bodies. The active antagonism of time, which is pure quality or heterogeneity, and space, which is pure quantity or homogeneity, results in the world of our experience, comprising "states" of consciousness and things or objects.

But it is impossible, at least to the present reviewer, to make the existential status of matter in Bergson's philosophy otherwise than obscure. Time and space, being essentially antagonistic, must therefore *essentially* imply each other; and if so, do they not stand in the same rank as real existences? In what sense is either real and the other unreal, except by an arbitrary decree? The limits of this paper do not permit of exposition or criticism of this important point. The metaphysical obscurity has its corresponding epistemological obscurity as to the cognitive status of knowledge of matter, which is the crux of Bergson's philosophy. Let us merely note, at this point, the two premises which Bergson sets in clear light, and the conclusion which seems to follow inevitably from them: matter is without duration; duration is a name for reality; therefore matter is not real.

Instinct is suited to the knowledge of life and duration, intelligence is suited to the knowledge of inert matter only. Instinct is the knowledge which Professor James calls "acquaintance-with" as distinguished from "knowledge-about" or intelligence. Science, Bergson remarks, says many things about time, but affords no acquaintance with time itself. The

duration of the unit of time is a matter of indifference to the meaning and value of any scientific formula. For example, if this unit were made infinity, and the physical process represented by the formula were thus regarded as infinitely quick, i. e., an instantaneous, timeless fact, the instantaneity of the fact would be irrelevant to any truth expressed by the formula. The only truth the formula expresses is a system of relations, which remains the same for any unit of time.

Science knows no past nor future, nothing but an incessantly renewed instantaneous present, without substance. The conclusions of science are given in the premises, mathematically; the world of science is a strict determinism. In the real world of consciousness, on the other hand,—knowledge of which can only be acquaintance with it—the future is essentially contingent and unforeseeable, for each new phase is an absolute creation, into which the whole past is incorporated without determining it.

With current French philosophy generally, Bergson's interest is largely if not chiefly the problem of freedom. This problem is a conspicuous motive in all three of his books. His proof of indeterminism rests on a critique of intellectualism; the critique of intellectualism proceeds by applying to traditional metaphysics and epistemology a criterion of reality which is the chief of this author's many claims to originality. Whether science, the product of intelligence, is physical, biological, or psychological, it is knowledge-about, and not acquaintance-with; its object is relation, and not reality; its objective is action, and not vision; its organ is intelligence, not instinct. But the object of philosophy is reality; its objective is vision; its organ instinct. The timeless, intellectual way in which science knows-about, but never knows, is not the way of true philosophy. The philosopher, to know reality, must achieve a vital, sympathetic concurrence with the flow of reality. To be known, reality must be *lived*, not thought. In this book Bergson traces the genesis of instinct and intelligence to a primitive tendency, effort or spring of life (the *élan vital*), whose path bifurcates indefinitely in the course of its evolution. These elementary tendencies, instinct and intelligence, having issued from the same primitive tendency, are both present, at least in rudiment, in all forms of life; and it is the presence, though in a suppressed state, of instinct in man that must save philosophy from the emptiness of science, and give it a hold on the living fulness of reality. Bergson disclaims the purpose of offering a theory either of knowledge or of life, in this book, but aims to suggest a method of knowing reality in spite of the limitations of intelligence.

The active principle of life Bergson describes by the phrase *tendency to create*. Its movement is a creative evolution. Life flows, or, as we have said, rolls on like a snowball, in an unceasing production of new forms, each of which retains, while it modifies and adds to, all its previous forms.

But the figure of the snowball soon fails. One of the most significant facts of the creative evolution of life is the division of its primitive path into divergent paths, to which we have just referred. The primi-

tive *élan* contains elementary virtualities of tendency which can abide together only up to a certain stage of their development. It is of the nature of a tendency to break up into divergent elementary tendencies, as a fountain-jet sprays out. As the primitive tendency develops, elements contained in it which were mutually compatible in one and the same primitive organism, being still in an undeveloped stage, become incompatible as they grow. Hence the indefinite bifurcation of the forms of life into realms, phyla, genera, species, individuals. It is a cardinal error, the author thinks, to regard vegetative, instinctive, and intellectual life, in the Aristotelian manner, as successive stages in one and the same line of development. They represent three radically different lines of evolution, not three stages along the same line.

A tendency common to all life is to store the constantly diffused solar energy in reservoirs where its equilibrium is unstable. This tendency, of alimentation, is complementary to the tendency to resolve the unstable equilibrium of potential energy by sudden, explosive release of energy in actions. As the primitive organism developed (undoubtedly an ambiguous form, partaking of the characters of both the animal and the vegetable) these two tendencies became mutually incompatible in one and the same form of life. Those forms which became vegetables owe their differentiation from ancestral forms to a preponderant leaning toward the *manufacture* of the explosive, as the animal forms owe their animality to a leaning toward the release of energy in sudden and intermittent actions.

The vegetable, drawing its nourishment, wherever it may find itself, from the ground and from the air, has no need of locomotion. The animal, dependent on the vegetable or on other animals for food, must go where it may be found. The animal must move. Now consciousness emerges *pari passu* with the ability to act, and torpor is characteristic of fixity. The humblest organism is conscious to the extent to which it can act freely.

Action may be effective either by virtue of an excellence in the use of instruments of action or by virtue of an excellence in adapting the instrument to the need. Action may thus assume either of two very different characters, the one instinctive, self-adaptive reaction, the other intelligent manufacture. The two tendencies have bifurcated within the animal realm. One path reaches its present culmination in certain hymenoptera (*e. g.*, ants, bees, wasps), the other in man.

Thus the development of instinct in man has become subordinate; human consciousness is dominated by intelligence. Hence the universality of the vice of intellectualism in philosophy. Man, because he is dominated by intelligence, supposes intelligence to be coextensive with consciousness, whereas it is only one of the elementary tendencies which consciousness comprises, and the one which is impotent to know the flow of reality. Spencer's evolutionism affords no acquaintance with the reality of life. His so-called evolution starts with the already evolved. Hence all it reaches is the made, the once-for-all, the timeless. It is

merely a biological theory, and no advance over positive science. It is not a philosophy.

Having shown the origin of intelligence in the more extensive principle of consciousness in general, and limited its sphere of operation to inert matter, the author turns to the nature of instinct. The greater part of the psychic life of living beings that are characteristically instinctive Bergson believes to be states which he describes as knowledge in which there is no representation (pp. 190, 191). Representation escapes, as it were, through the vent of action. A purely instinctive action would be indistinguishable from a mere vital process. When the chick, for example, breaks its shell, it seems merely to follow the movement that has carried it through the embryonic life. But neither instinct nor intelligence is ever pure, and we have in ourselves a vague experience of what must happen in the consciousness of an animal acting by instinct. We have this experience in phenomena of feeling, in unreflecting sympathies and antipathies. "Instinct is sympathy. If this sympathy could extend its object and also reflect upon itself, it would give us the key to vital operations. . . . Intuition, to wit, instinct, become disinterested, conscious of itself, capable of reflecting upon its object and of indefinitely enlarging it, would conduct us into the very interior of life. . . . It is true that . . . intuition . . . attains only the individual, but a research may be conceived whose orientation should be that of art, and yet whose object should be life in general" (pp. 191, 192).

It is the artist much more than the scientist that really knows nature—that knows it inwardly and truly. The superiority of his knowledge is due to a sympathetic attitude much more than to any intellectual discipline in physical and chemical laws. So the true philosopher is an artist in life. The intellectualist philosopher is a dissector of life's defunct remains. Knowledge of the inwardness and essence of life is possible only through a sympathetic attitude; it is not possible through any intellectual discipline in laws and principles.

Now Bergson's idea of the philosopher—an artist in life—is probably no one's else. He is of that opinion, decidedly; a considerable part of the book is a demonstration that actual philosophers, from Plato on, are intellectualists all, dissectors, not artists. But if Bergson's enterprise is to be a *substitute* for philosophy and appropriate its name, we who are much addicted to the old enterprise will be careful to know why it is futile and illusory.

To state the case as concisely as possible, intellectualistic philosophy is charged with attempting to *know*, with a faculty that can only *know-about*, duration, which can not be known-about, but can only be known.

In the schema of the movement of knowledge between two limits, dreaming and action, to which we have referred, the elucidation of one important point would tend to modify the opposition between acquaintance-with and knowledge-about. The point is that knowledge vanishes at each limit and there becomes purely objective existence. The two

opposed *kinds* of knowledge should rather be regarded as antipodal phases between which, as limits, knowledge varies, meanwhile always remaining knowledge. Change of its phase is no strengthening or weakening of its essence. In any phase it is itself, knowledge, and nothing else. The variation in the phase of knowledge follows a variation in the dynamic relation of the subject to the object. This relation may be expressed by the ratio of the subject's virtual activity to his real activity. At one limit this ratio is zero and at the other infinity. Suppose the subject of knowledge to be automatically active toward his object, i. e., the ratio of his virtual to his real activity is zero. Knowledge has vanished; an automatically active subject of knowledge is a self-contradictory expression; he is no longer a subject of *knowledge* at all. His subjectivity, from being cognitive, has become purely active. Suppose, at the other limit, the subject of knowledge, instead of being automatically active, is absolutely inert, i. e., the ratio of his virtual to his real activity is infinity. Again knowledge vanishes. An inert subject of knowledge is also a self-contradictory expression. He is now again a subject of activity, but not of knowledge. For inertia, being resistance, is again force or activity—activity of negative sign, if you like, being antipodal to the other pole of knowledge.

Two things are important for our purpose, in the above remarks on Bergson's schema. First, that in all its variations of phase knowledge is always of the same nature and constitutive elements, involving a ratio of virtual to real activity in the subject; and second, that this variation of phase does not depend on or correspond to any variation of externality or distinctness between the subject and the object. Variation between identity and distinctness is inconceivable. The two relations exclude each other absolutely. Knowledge is *essentially* polarized in subject and object. So, for that matter, is existence itself, which is activity. Action of a thing on itself is a mere cancelation of terms of opposite sign, a self-contradiction. The same of knowledge of a thing by itself. *The subject and the object, whether of action or of knowledge, are necessarily absolutely external to each other.*

Bergson is treating knowledge as if it could be more or less cognitive in nature; he is treating variations of phase as if they were augmentations or diminutions of essence; he is treating quality quantitatively. Moreover, he is treating the variations in phase of knowledge as if they were determined by variations in a certain relation that is in fact invariable. This absurdity leads him to treat the relation of identity as *antipodal* to the relation of distinctness. Now the ratio zero is antipodal to the ratio infinity, but the relation of identity is *contradictory* to the relation of distinctness. True antipodes necessarily imply each other; Bergson's antipodes necessarily exclude each other.

Only by supposing that antipodes exclude each other could a function be supposed to vary between being and not-being. As between being and not-being, of knowledge, Bergson's preference of the former is obviously just. But variation between them baffles instinct and intelligence alike.

Furthermore, if the poles of knowledge are determined by the existential relations of identity and distinctness between subject and object, the pole at which knowledge "is" should be determined by the relation of distinctness, that at which knowledge "is not" by the relation of identity.

But the truth is, when a function varies between a positive and a negative pole, neither pole is an apogee where the function is most itself. On the contrary, it disappears at each pole alike. Nor is it most itself midway between the poles, nor at any other privileged position, for it is absolutely and fully itself, and nothing else, in every phase.

If any consideration extraneous to the nature of knowledge itself were to be admitted as evidence of the validity of knowledge, it would seem as if the very characteristic which is most sedulously attributed by the instinctive to the intellectualistic philosophy should give the palm to the latter. That characteristic is utility. But, in the first place, no such extraneous consideration has anything to do with the validity of knowledge, and, in the second place, the characterization of intelligence as the servant of action does not distinguish intelligence from instinct. If intelligent action, as we are told, has an "end" in mastery over nature, is this supposed to imply that instinctive action is an end in itself? Surely both alike result in a new situation, a new arrangement of matter; and the only thing that can give true finality to the intelligent act is the affective value of the conscious state arising out of this new situation. But the same is true of the situation following on the instinctive act.

It may possibly be argued that it is only acquaintance-with objects that can have any affective value, and that the instinctive kind of knowledge is, therefore, an end in itself in a sense in which intelligence is not. For knowledge-about the object will then be supposed to have no affective value in itself, but only as it may subserve action upon the object, which action will be accompanied by acquaintance-with the object. But if knowledge-about an object subserves acquaintance-with it, the converse is no less true. If knowledge of the location and price of a tennis ball subserves my use of it and acquaintance-with it, the latter in turn subserves my knowledge-about it in an indefinite number of respects. True, acquaintance-with an object may much less obviously lead to knowledge-about it than in the case of the tennis ball, but, again, the converse is equally true; for instance, the utility of a certain mathematical equation may be quite inscrutable.

Moreover, it is simply not true that knowledge-about is without affective value. Both experience and reason pronounce the contrary. If a characteristically intellectual state of mind gives you less satisfaction, or more, than one that is characteristically intuitive, the reason in either case is quite personal and accidental. It may just as well give you more as less. Being simply knowledge in either case, it has its affective element, in *some* degree, necessarily, of whichever character it may be.

"Experience of relations," "intimate acquaintance-with" (terms),

the "thing-in-itself"—all these abstractions are commonly discussed as if they were concrete entities. The yearning for intimate acquaintance-with the thing-in-itself is a morbid yearning for self-contradiction. The more you know a thing "in itself," or the more you "internalize" yourself with it—i. e., the more you identify yourself with it—the less you bear any significant relation to it, any relation, obviously, but that of identity; the less, notably, you bear the active and cognitive relations to it.

In the "Essai" it is shown how, for Paul to know Peter *in himself*, Paul must do nothing less than *become* Peter. Suppose, then, that Peter is Paul's father, and devotedly fond of Paul. In such a case, it is a vital part of Peter to be wrapped up in Paul. If Paul, therefore, vanishes when he becomes Peter, he does not become *Peter*; the most important thing about Peter is now lacking, to wit, his being wrapped up in Paul. But if Paul has not vanished in becoming Peter, obviously *Paul* has not become Peter. In short, *Paul can not become Peter, just so long as Paul knows Peter.*

The thing can neither be nor be conceived except in its relations, nor the relations without the thing. If you know the thing-in-its-relations you know the thing and you know its relations. They are not two knowledges, but one and the same, with a shifting of interest or affective value. Knowledge-about terms is nothing but acquaintance-with relations. Both expressions are abstractions, and neither defines real knowledge, but merely posits the fact of universal reality, one in one way, the other in another; one as a system of relations, the other as a homogeneous aggregate of world-stuff.

If the instinctive attitude toward reality is the artistic attitude, the intellectual might be called, for the sake of symmetry, the critical attitude. But it is the *artist* that acts and the *critic* that judges, which seems to imply that it is instinct rather than intelligence that is the servant of action, the contrary assumption to that which is made in this book. The fact is that neither affirmation has any valid meaning for epistemology, though in a colloquial sense the opposite of the Bergsonian postulate is obviously the truth, namely, that knowledge is characteristically intellectual not as the subject is the more active, but as he is the more passive, toward his object; and so, *mutatis mutandis*, for knowledge that is characteristically instinctive. But only in a colloquial sense, for to be passive toward an object is to be as much engaged in an active relationship with it as to be active toward it; the activity has merely changed sign.

But the opposition between the phases of knowledge is greatly mitigated, if not quite neutralized, once the object's relation-aspect is reinstated in its true parity with the term-aspect. A quarrel could, then, hardly be kept alive over the question of the cognitive merits of thorough acquaintance-with and thorough knowledge-about. What, after all, would the difference amount to? Helen Keller gives evidence of the richest cognitive experience, with a meager equipment for acquaintance-with her

told that one of the prime movers in leading philosophy astray has been science itself, as *Geisteswissenschaft*. These sciences of spirit have the peculiarity that they assume, and are able, to treat their objects not alone as elements having external relations, but also in some measure from within. To the idealists such *nachfühlendes Erkennen* seemed the goal of all knowledge; and it was the essence of their methodic error to assume that nature and the universe at large may be known in this same fashion. But why declare this an error? In one who accepts so fully as does Professor Stumpf the main idealist contention of the "Priorität des Geistes gegenüber der Natur," it remains an unexplained dogma that some valid systematic knowledge of the universe as a whole *from within* (which is what philosophy usually means) is impossible. Philosophy must indeed welcome all declarations of the type before us to the effect that it means to regard experience; to be scientifically responsible; to accept the cost of technical labor, even of *Kleinarbeit*, in its investigations; to acknowledge its aspect as a race problem, not finishable by any one person or generation. But these acknowledgments are only negative elements in philosophic rebirth; in themselves they furnish no solution of the problem of philosophic method. Nor will the scientific spirit have yielded its due fruit in this direction except by the conquest of the objective principles of our consciousness of values—precisely the domain which, as the field of poetry and feeling, Professor Stumpf seems ready to surrender to final contrast with the field of exact knowledge.

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Psychologie des neurastheniques. P. HARTENBERG. Paris: Alcan. 1908. Pp. 246.

This work can not be said to be a psychological treatise, nor does it deal with the subject of neurasthenia in accordance with the accepted use of the term to-day. It is rather a series of descriptions of the symptoms found in psychasthenia, although in the introduction the author makes plain his purpose to construct a psychology rather than a symptomatology, and he admits that his use of the term neurasthenia is a personal conception—a *conception chemin faisant*, as he pleases to term it.

Normally, we are told, the nervous system has a certain degree of nervous tension with oscillations. The normal nervous tension may be exceeded or diminished. The latter condition is that of neurasthenia. The condition of excessive nervous tension is also something abnormal, not now described or even named, to the description and analysis of which the author promises to devote another volume. The hypothesis or supposition, we may even say the guess, of different degrees of nervous tension is not new, and it has been used previously as a verbal explanation of many cerebral or psychical conditions. Hartenberg affirms that the nervous system has only one manner of being depressed, and this manner always shows the symptomatology of neurasthenia. This, it is

almost needless to say, is an entirely unwarranted assumption. The exaggeration of nervous tension is, the reviewer believes, the same sort of myth as the supposed exaggeration of mental activity in maniacal conditions. The maximum of efficiency is to be found only in normal, never in abnormal, conditions. There may be conditions of hyper-excitability, there may be ease of motor response, but these are rather evidence of lowered tension—if we accept the terminology and use this word—as even Hartshorn admits.

The author in his definition says that neurasthenia is not a psychosis, *i. e.*, not insanity. The neurasthenic patient according to him is not insane; he will never become demented because of his neurasthenia, nor will he become delirious, and his higher mental functions (*sic*) will always remain intact (p. 18). On the other hand, the author admits there is sometimes found "l'atténuation du sentiment du réel" (p. 109), which always indicates a greater or less loss of control of judgment, and in such patients there may be defects of memory, of imagination, of attention, etc.

It can not be said that the author has added much to our knowledge of either neurasthenia or psychasthenia, and the psychological analyses are rather affirmations of the author's opinions and beliefs. For the serious or critical student the book is not indispensable, but it gives a fair idea of some common abnormal mental states and may be recommended to the laity—medical and psychological—who have neither the inclination nor the time for larger and better works.

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JOURNALS AND NEW BOOKS

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. April, 1908. Band 21, Heft 2. *Edward Zeller* (pp. 289-295): L. STEIN. *Zur Vorgeschichte zweier Lockscher Begriffe. I.* (pp. 296-298): C. RAEUMKER. — The concept *tabula rasa*. *Die Staatslehre des Mariana. II.* (pp. 299-332): B. ASTORVLADIS. — Mariana's contention that the king rules only to serve, and that otherwise he is a tyrant, whom, under certain conditions, it is the duty of a subject to slay. His functions. *Liber secundus economicorum Aristotelis. I.* (pp. 333-351): R. BLACH. — The doctrines of this doubtful work are rather Aristotelian than stoic. *Sopra un passo illogico della logica del Rosmini* (pp. 352-356): G. CEVOLANI. *Platons Ideenlehre* (pp. 357-371): G. FALTER. — A fiery vindication of Natorp's "Platons Ideenlehre" against Gompertz's hostile criticism. *Die Sinne und die Künste. I.* (pp. 372-396): O. HILPERDING. — Art is always dramatic, self-representative, whether the public be actually present or not. *Pascals letztes Problem. I.* (pp. 397-415): F. KUNZE. — The problem of stating the history of the world in its simplest terms, as a movement from lowliness (Adam's fall) to greatness (Christ's dominion). *Jahresbericht über*

die vorsokratische Philosophie (pp. 419-435): O. GILBERT. - Devoted to a statement of many new and amended passages appearing in the second edition of Diel's "Fragmente der Vorsokratiker," first volume. *Die neuesten Erscheinungen. Historische Abhandlungen in den Zeitschriften. Eingegangene Bücher.*

Beard, Charles Austin. *Politics: A Lecture delivered at Columbia University* February 12, 1908. New York: The Columbia University Press. Pp. 85. 25 cents.

Burnet, John. *Early Greek Philosophy*. London: Adam and Charles Black. 1908. Pp. x + 433.

Dewey, John. *Ethics: A Lecture delivered at Columbia University* March 25, 1908. New York: The Columbia University Press. Pp. 26. 25 cents.

Gibson, W. R. Boyce. *The Problem of Logic*. With the cooperation of Augusta Klein. London: Adam and Charles Black. 1908. Pp. xii + 500.

Häberlin, P. *Herbert Spencers Grundlagen der Philosophie. Ein kritische Studie*. Leipzig: Barth. 1908. Pp. iv + 205.

March, John Lewis. *A Theory of Mind*. New York: Charles Scribner's Sons. 1908. Pp. vi + 453. \$2.00 net.

NOTES AND NEWS

COMMENTING on the report of the Royal Commission on the care and control of the feeble-minded, *Nature* for September 17 says: "The report necessarily opens up matter of great scientific interest; but the commissioners, perhaps wisely, have contented themselves with deducing from a mass of scientific evidence only such conclusions as bear upon the practical issues under their consideration. On the momentous question of the origin of mental defect, they remark somewhat plaintively (vol. viii., p. 179), 'we found it practically impossible, and deemed it undesirable, to exclude from consideration the great mass of evidence which was tendered to us in reference to the conditions and antecedents of mental defect, especially in the very large class of cases in which the evil dated from birth or from early life.' The great majority of the witnesses who spoke specially on this question (among whom were Sir T. Olifford Allbutt, Sir E. Ray Lankester, Dr. Archdall Reid, and Dr. Bevan Lewis) regarded feeble-mindedness (where not accidental) as a germinal variation, a reversion to a more primitive type of brain, and a condition which is necessarily inherited. The trend of the evidence of these witnesses was distinctly opposed to the notion that causes such as faulty nutrition, wasting diseases, or alcoholism are of importance in the production of feeble-mindedness. Considerable evidence of a contrary kind was offered, but neither the authority of the witnesses nor the data upon which they relied was sufficient to shake what is at present the accepted teaching of

biology. As might have been expected, an attempt was made by certain witnesses to put forward the opinion that the existence of mental defect in a community might be checked either by surgical or other artificial measures, or by placing obstacles in the way of the marriage of persons ascertained to be mentally defective. The commissioners repudiate these suggestions, but they nevertheless somewhat hesitatingly come to the conclusion upon the evidence submitted (vol. viii., p. 185), '(2) that especially in view of the evidence concerning fertility, the prevention of mentally defective persons from becoming parents would tend largely to diminish the number of such persons in the population.' This is an opinion on which there is much room both for doubt and discussion. Many of the feeble-minded are the children of parents of average physical and mental health; a still larger number are children of neurotic parents, who are, however, of such mental integrity that no state would venture to prohibit their unions. The number of the feeble-minded who are descendants of obviously imbecile parents, while probably not inconsiderable, does not by any means form such a proportion of the class that the prevention of their existence would 'largely' diminish the number."

PROFESSOR LOVEJOY has sent us the following: "In his *Bibliotheca Platonica* Mr. Thomas M. Johnson, of Osceola, Missouri, is engaged in publishing selections from neo-Platonic writers, some of which have not hitherto been available in English. The last number issued (1908) contains a new rendering of the 'Demonstration of the Immortality of the Soul,' from the commentary of Hermeias on the *Phædrus* (first translated by Thomas Taylor in the *Classical Journal*, 1820), as well as a reprint of Taylor's 'Dissertation on the Doctrine of Ideas' (published in 1792), and a paper by Mr. Johnson on 'The Fundamental Ideas of the Human Mind.' Previous issues include versions of various fragments and shorter works of Plotinus, Porphyry, Iamblichus, Proclus, and Synesius, which are not otherwise generally accessible."

THE Syndics of the Cambridge University Press and the Council of the Cambridge Philosophical Society are arranging to publish a volume in commemoration of the centenary of the birth of Darwin and the fiftieth anniversary of the publication of "The Origin of Species." The articles will be by British and foreign contributors and will treat of Darwin and evolution, Darwin's geological work, Darwin's contributions to botany, and the influence of the conception of evolution in various departments of philosophy.

PROFESSOR HUGO MÜNSTERBERG and Professor George Santayana, of Harvard University, will lecture on esthetics at Wellesley College during the coming year.

MR. L. W. COLE, recently professor of psychology at the University of Oklahoma, has accepted a position as instructor in experimental psychology at Wellesley College.

THE Oxford University Press are publishing an Index volume to "The Sacred Books of the East."

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

PROFESSOR DEWEY'S PRAGMATISM

THE following pages will form one chapter, "Le cas Dewey," of a book which is to be published in Paris, next winter, in F. Alcan's *Bibliothèque de philosophie contemporaine*, under the title "Antipragmatisme." What the writer means by "antipragmatism" will be seen in the forthcoming volume. At present, it will suffice to state that the extract printed below belongs to the end of the first part, where the chief theories of pragmatism are examined from a critical standpoint. This study of Professor Dewey's views had just been completed when he published his review of Wm. James's "Pragmatism" in this JOURNAL of February 13, 1908. It is in many ways an admirable criticism; but as Professor Dewey's own conception of pragmatism remains the same as before, nothing needs to be changed in the following pages.

Among the representatives of pragmatism in America, there is one whose position is not very clearly defined. Pragmatists have good reasons to claim him as being one of them, while he himself has good reason for keeping somewhat on the defensive. He has reiterated his hesitations once more in his criticism of James's book.¹ The "Dewey case" is interesting and characteristic. It is worth while to devote one chapter to a close examination of it.

Dewey is not exactly obscure, but from a French point of view, at least, he is certainly neither simple nor easy. I have wondered, at times, whether the endless windings of his philosophical thought have not contributed much to gain for him the enviable reputation of being "the most scientific" representative of pragmatism. In studying more closely his theories, one understands that Dewey hesitates—whether consciously or unconsciously I would not venture to say—between two ways of thinking which fundamentally contradict each other, and that he devotes a great part of his strength to conciliate them; thus the real meaning of his "tours, détours, et retours" becomes apparent.

¹ *Loc. cit.* See especially p. 96.

There is very distinctly at the bottom of his speculations a pre-occupation similar to that which we find in his brothers in pragmatism; namely, to bring moral ethics and scientific truths on the domain of logic. The title of his long and famous essay, "Logical Conditions of a Scientific Treatment of Morality" (Chicago, 1903), is a complete program by itself. Only, instead of demonstrating that moral judgments have the same characteristics as the scientific judgments (as we would have expected, and as every one else would have done, it seems, who wanted to show that moral judgments can really be "scientifically treated"), Dewey chooses to do just the reverse: the first part of his essay is destined to show that scientific judgments have the characteristics of the moral judgments.

His conception of the "moral judgment"—which might, perhaps, sound somewhat old-fashioned to some of us—is the one he finds prevailing all around him in the Anglo-Saxon world, namely:

1. Moral judgments are individual, *i. e.*, aim at solving particular cases, and since each case is individual, the value of those judgments is absolute, not relative; as opposed to scientific judgments, which are usually considered as being universal, *i. e.*, good to solve not only individual cases, but any other similar cases: in science there are universal cases, people think, but not in ethics. Now, says Dewey (anxious, I repeat it, not to reduce moral judgments to scientific judgments, but, on the contrary, scientific judgments to moral judgments), this is erroneous. A scientist is looking for general laws, it is true; but at the same time he wants to solve individual cases or problems; laws are not science, but only a means to get science; and if a law does not solve a specific problem, the scientist will change the law and not the problem. Thus science, like ethics, aims at the individual case.

2. As applied to practical life, moral judgments imply the intervention of the personality of the one who judges, as one factor in the judgment. And here again, scientific judgments, if one only studies them closely enough, are like moral judgments; they imply a personal intervention, or action, on the part of the one who judges, (*a*) in the classification of possible predicates, (*b*) in the selection of the individual cases to be studied to solve a problem, (*c*) in the choice of the means for verifying an hypothesis, either by experience or by demonstration. In those three operations the personality of the judger, or, as Dewey says, his "character," modifies the judgment, guides, suggests. Thus: "If the use of scientific resources, of technique of observation and experiment, of systems of classification, etc., in directing the act of judging (and thereby fixing the content of the judgment), depends upon the interest and disposition of the judger, we have only to make such dependence explicit, and the

so-called scientific judgment appears definitely as a moral judgment" (p. 14).²

All this can be expressed in the following formula: the so-called scientific judgments, or purely objective judgments, being an abstraction without real existence, it is not possible to speak of scientific judgments which have not at the same time the characters of the moral judgments. Or, still more briefly: scientific judgments exist only as moral judgments. And the conclusion would be: since scientific judgments have the fundamental characters of moral judgments—aim at individual cases and imply the intervention of personality—moral judgments are as good, *as scientific*, as scientific judgments.

So far the spirit is altogether the same as the one prevailing in James and Schiller: man can not *not be* subjective in his judgments and opinions. Thus, if his moral judgments are subjective, they are worth as much as his scientific judgments (which latter are as a matter of course scientific). Only the way of expressing things is more scholastic with Dewey.

But once this point has been reached, the ground becomes slippery; for there is only a short distance to go before one feels like saying, Since the subjective element really *creates* our judgments (scientific or moral), since it is the unavoidable condition of judgment, it is *therefore* indispensable, and it is *therefore* the really important element. And then, one takes still another step: but then the moral judgment, in which the subjective element is more marked, as a matter of fact, than in the scientific judgment, ought, *therefore*, in case of conflict or hesitation, to be considered superior to the scientific judgment. There is the explanation of Schiller's paradox, that in case one has absolutely to choose between irrationalism and intellectualism, the first shall have the preference with the pragmatist.³ Those arguments are obviously false.⁴ Scientific judgments are, perhaps, all subjective, but it does not follow that they will be better for it. To maintain that subjectivism being unavoidable is indispensable, and thus, that the more there will be of it, the better for our judgments, holds still less. *But* all this is "indispensable" for pragmatism, which proposes to confer upon man the right to choose or to give out what truth shall be according to what is opportune, instead of simply ascertaining it.

² Except when otherwise stated, we quote from the essay on "Logical Conditions of a Scientific Treatment of Morality" (Chicago, 1903). I add that the complete and somewhat subtle demonstration which has just been summarized in order to render clearer the following pages, will be found on p. 9 ff. and p. 26.

³ "Humanism," p. 5.

⁴ This is discussed in detail in the first chapter of "Antipragmatisme."

partner whom he has chosen is simply going to prevent him from ever reaching his goal: a morality which is logically independent from science. He will finally do exactly the reverse of what he intended, namely, he will reduce the logic of ethics to the logic of science.

This is the way he establishes a difference between the two logics: While the intrusion of the personal element (or "character") is without practical results in the scientific judgments, in the moral judgments, on the contrary, this personal element "qualitatively colors the meaning of the situation"; it has an actual bearing on conduct; a moral judgment is almost an act. Thus, thinks Dewey, since, owing to circumstances, the personal element = zero in the scientific judgments, it is useless, "logically" speaking, to take it into account, while it is impossible to ignore it in moral judgments when we know it to be a fact that it does play an important part: "Character as a practical condition becomes *logical* when its influence is preferential in effect—when instead of being a uniform and impartial condition of any judgment it is, if left to itself (or unstated), a determinant of *this* content-value of judgment rather than that" (p. 161).

Is not all this rather extraordinary? If subjectivism (or "character") = zero, logically, in the scientific judgments, what is the meaning of those long pages and elaborate arguments of the first half of the essay in order to prove that subjectivism is there and *acts* in the same manner as in the moral judgments?

One of two things must be true: Either Dewey means to say that in the moral judgments there is something which is not to be found in the scientific judgments, namely, subjectivism: but, in this case, he flatly contradicts himself, since the first part of his essay is written to prove that there is subjectivism in the scientific judgments as well as in the moral judgments. He tells us now that when the action of "character" (or of subjectivism) becomes "preferential" in its effect, then the judgment *by this fact* becomes logical. But what then? As this action of character is not "preferential" in the scientific judgment, have we to believe that the scientific judgment is, perhaps, no longer "logical"? Unless one means to make fun of logic, such affirmations can not be taken seriously.

Or Dewey means to say that there is a minimum of subjectivism in scientific judgments, while the proportion is simply greater in moral judgments: but then we have to deal with a mere difference in quantity, not in quality, not a difference in the nature of the judgment; if the action of the "character" is simply more complex in the moral judgments than in the scientific judgments, this is not enough to differentiate them "logically." And then moral judg-

ments are reduced to scientific judgments.—One must choose.

Now, on the other hand, Dewey can not choose the second alternative, since he started with the idea of proving the opposite. On the other hand, Dewey can not *not* choose the second alternative, since he speaks of "logical conditions of a scientific treatment of morality"; unless one adopts in ethics the same logic which is adopted in science, one can not speak of a "scientific" treatment of morality.

Dewey has finally accepted the second alternative—and he sticks to it. The second half of his essay, therefore, contradicts the first; as was to be expected. Here is his definition of "character"—everything depends on this definition: "The term 'character' denotes this complex continuum of interactions [*i. e.*, interactions of natural dispositions, of technique, of knowledge, of habits of thought, etc.] in its office of influencing final judgment" (p. 14). This plainly indicates that for Dewey "character" is an effect before being a cause, a product (determined by considerations concerning the future as well as by circumstances in the past), and which acts only as a product strictly determined; "character" can be treated "logically" in the same sense as any factor in any scientific judgment. All attempts to differentiate between moral and scientific judgments are doomed to failure after that.

To convince ourselves that such is really the point of view adopted by Dewey in the end, we need only summarize the end of his essay. It is true that here and there the author seems to hesitate in developing his ideas; it is the pleading of a determinist, who is embarrassed by free-will reminiscences. Dewey, at times, even takes advantage of terms having a double meaning; especially when he considers the "scientific treatment" as serving "to control the formation of judgment" (p. 14). "To control" may mean to interfere in an active fashion, independently of the scientific factors taken into consideration; or it may mean simply that, knowing the factors which may enter into the determination, *i. e.*, being conscious of them, this consciousness only adds a new factor (just as determined as the others) in the formation of the judgment. Dewey proves the second sense to be true, *but then* speaks as if he had demonstrated the first. It seems clear, therefore, to one who judges from the spirit and not from the letter, that Dewey, in his conception of morality, finally adopts the traditional scientific conception of judgment.

He wants to prove this: That an ethical judgment "effects an absolutely reciprocal determination of the situation judged, and of the character or disposition which is expressed in the act of judging" (p. 17).

To appreciate, or to form, or to control, moral judgments, three conditions are required: (1) One must classify them, (2) one must know exactly the *psychological conditions*, the "character" of the judger, and also know (3) the *social conditions* in which the judgment takes place, "the situation judged."

(1) To *classify*, Dewey wishes to define clearly the domain of ethics; he proposes to have a sort of system of ethical "categories" corresponding to the categories of time, space, matter, etc., in physics. One must, for instance, agree on the meaning of the term "moral standard," whether it has any connection with happiness, or with the ideal of perfection; thanks to this we might then discuss profitably questions of ideal, of obligation, of responsibility, and of others. The writer confesses that he does not see very well the bearing of such theoretical discussions. What does Dewey exactly mean with those categories anyway? Does he wish, after all, to persuade us that there remains somewhere an essential difference between the logic of science and that of morality; or does he simply mean to point out the fact that the domain of moral researches is different from that of physics, for example, or other sciences? In the second case, it is rather useless to write a chapter to prove so evident a thing; in the first case, those "logical" connections between ethics and science, which precisely he wanted to bring out, are not made clear. The only example offered, that of the "moral standard," gives no light; one does not see whether he speaks of an absolute and imperative standard, or of a relative and changing one. If the "absolute" standard is meant, where does it come from? is it metaphysical? is it the old "moral sense"? But, then, what is the use of a "scientific" treatment of morality? Psychological factors and social factors can not affect it in the least. And if the "relative" standard is meant, if the standard depends on the *milieu* and on character as determined by contingencies, how can we define the "category" of standard otherwise than by the mere attribute of existence? Then, here again, we have a very superfluous chapter. One thing seems clear to me in all this: Dewey wants to bring ethics nearer to physical sciences, to prevent arbitrariness in definitions and concepts; in short, to confer upon ethics the logical qualities of natural sciences. But "categories" are useless for that purpose; even in physics, the categories of space, time, matter, are of secondary importance. No professor of physics, as far as we know, discusses them as an indispensable introduction to his special subject. They are questions pertaining to the theory of knowledge, or, possibly, to psychology, rather than to physics. In the same manner "moral categories" would have only a distant relation with ethics, even if conceived as scientific as physics.

If not conceived in this way, things may be different; but then the parallelism between moral categories and scientific categories, which Dewey has in mind, exists no longer.

(2) Dewey's demonstration becomes much more satisfactory when he deals with the *psychological conditions* of moral judgment. The intrinsic logic of his premises prevents him from going astray: "Since character is a fact entering into any moral judgment passed, ability of control depends upon our power to state character in terms of generic relation of conditions, which conditions are detachable from the pressure of circumstance in the particular case. Psychological analysis is the instrument by which character is transformed from its absorption in the values of immediate experience into an objective, scientific, fact. It is, indeed, a statement of experience in terms of its modes of control of its own evolving" (p. 19). Thus, if we isolate by analysis the factor of "character," we are able to show that it is determined in its essence, and determined also in its determination, i. e., in its manner of judging. We can not conceive of it in any other way. Dewey even proposes to make an "inventory" of the manners in which the different psychological dispositions do influence our judgment; and the results thus obtained "if true at all, have exactly the same logical validity that is possessed by any 'physical law'" (p. 20).

If, after that—be it that he does not realize the consequences of his premises or be it that he does not want to see them—Dewey declares that this analysis applied to experience allows us to "control" judgments "instead of merely indulging in them" (p. 21), this is of no importance; we have pointed out above the double meaning of the term "to control." Supposing that Dewey take it here in the sense of active intervention, independently of the scientific conditions in judgment, nobody else will be deceived by this amphibology after the words which we have just quoted from Dewey's own demonstration. Again, if Dewey claims that, while psychology shows to us that the moral judgment is determined by contingencies, psychology tells us *nothing* of the *content* of the moral ideal, nor that "consequently there must be recourse to transcendental considerations—to metaphysics" (p. 21), this alters in no way the scientific problem: the idea of an ideal may be a factor, to be sure, but it becomes one only after it has entered the scientific or psychological net of actions and interactions. Moreover, how would it be possible to conciliate this appeal to metaphysics with the following words, a few lines further down: "There is no question here of ideal as immediately experienced. Only living, not metaphysics any more than psychology, can 'give' an ideal in this sense" (p. 22).

(3) *Sociological conditions.* "Character," we have just seen, can be scientifically defined by us, therefore it must be scientifically determined. Now this factor of character, Dewey goes on to say, combines in an "absolute reciprocal determination" with the factor of the "situation judged"; and the scientific and determined nature of the latter is even more evident than that of character. To bring about a good moral judgment what do we need? In reply, Dewey says: "A social science which will analyze a content as a combination of elements in the same way that psychological analysis determines an act as a set of attitudes" (p. 23). It is, moreover, impossible to observe very strictly the distinction between psychological and sociological conditions, because the social influences here taken into consideration come into action only in as far as they influence the judge, *i. e.*, in as far as they become psychological. Dewey, therefore, wishes here only to emphasize what he calls the "continuity of the scientific judgments," namely, the interaction of social, biological, physical, etc., phenomena when they bear upon the moral judgment. "Any scene of action which is social is *also* cosmic or physical. It is *also* biological. Hence the absolute impossibility of ruling out the physical and biological sciences from bearing upon ethical science. If ethical theory require, as one of its necessary conditions, ability to describe in terms of itself the situation which demands moral judgment, any proposition, whether of mechanics, chemistry, geography, physiology, or history, which facilitates and guarantees the adequacy and truth of the description, becomes in virtue of that fact an important auxiliary of ethical science" (p. 24). Dewey opposes this conception to that of materialists and of transcendentalists. Materialists, like those described there, exist no longer, so we may ignore them. Transcendentalists are more interesting for us. It has been shown that in discussing the psychological conditions of moral judgments Dewey still hesitated whether or not metaphysics had to be given up altogether. This time he no longer hesitates: "The fact that advance of physical and biological science so profoundly modifies moral problems, and hence moral judgments, and hence once more moral values, may serve as an argument against transcendental ethics—since, according to the latter, such obvious facts would be impossibilities" (p. 24).

Where now, in all this, is there any room left for a pragmatic element? where the thinnest crack by which it might slip in? Since a moral judgment is the result of an "absolutely reciprocal determination" of the judge and of the situation judged, the moral ideal itself is only a product of this combination and must vary from epoch to epoch; and in its variations it depends strictly upon

the circumstances in which the judger happens to be with regard to the situation judged. A metaphysical ideal which would not be determined in the scientific sense of the word, is both impossible and useless; there is no room for it. The moral ideal is brought about "naturally" by the combination of the two above-mentioned factors; the ideal of to-morrow will be formed necessarily from the ideal of to-day. Now, if I become conscious of this mechanism, I may see where the ethics of to-morrow is aiming, and I may favor (or thwart) its course; but in this very action of favoring (or thwarting), the element of "reciprocal determination," which can be scientifically foreseen, is far from lacking.

If the method proposed by Dewey is conscientiously applied, the results reached will be the same as those of Lévy-Bruhl in his "*La morale et la science des mœurs*," he himself following in the steps of Durkheim's "*Méthode sociologique*." It is not a matter of mere chance if on both sides of the Atlantic, and without seeming to know of each other, those men agree so well on a theory which precludes pragmatism. Is it not as if one were reading Dewey—only in a style more direct, more transparent—when one comes across these words of Lévy-Bruhl: "*La conception nouvelle des rapports de la pratique et de la théorie morale implique qu'il y a une réalité sociale objective, comme il y a une réalité physique objective, et que l'homme, s'il est raisonnable, doit se comporter à l'égard de la première comme de l'autre, c'est à dire s'efforcer d'en connaître les lois pour s'en rendre maître autant qu'il lui sera possible.*"¹³

Only Lévy-Bruhl is more determined, more conscious of the bearing of his method: "*D'une façon générale, notre conception de la nature s'agrandit et s'enrichit chaque fois qu'une portion de la réalité qui nous est donnée dans l'expérience se 'désobjective' pour 's'objectiver.'*"¹⁴ Just like Dewey, Lévy-Bruhl wants to complete the psychological analysis of the judger by the sociological analysis of the situation judged: "*Au lieu d'interpréter les phénomènes sociaux du passé à l'aide de la psychologie courante, ce serait au contraire la connaissance scientifique—c'est à dire sociologique—de ces phénomènes qui nous procurerait peu à peu une psychologie plus conforme à la diversité réelle de l'humanité présente et passée.*"¹⁵

¹³ "*La morale et la science des mœurs*," 2d ed., p. 24.

¹⁴ *Ibid.*, p. 29.

¹⁵ *Ibid.*, p. 79. There are even certain concessions to popular moral conceptions which can be found in Lévy-Bruhl as well as in Dewey. Thus, when the first says: "*De même que nous avons de presque toute la réalité donnée dans l'espace deux représentations parfaitement distinctes, l'une sensible et subjective, l'autre conceptuelle et objective; de même que le monde des sons et des couleurs est aussi l'objet de la science physique, . . . de même nous pouvons*

Everywhere Lévy-Bruhl very plainly expresses his theories and his results, when with Dewey the reader constantly feels caution. The first frankly states: "Une science ne peut être normative en tant que théorique" (p. 14). And what the second wanted so much to show was that a science *can* be normative while theoretical; but the power of logic finally carried him one way, though his intention was evidently the other way. Read his note to page 13 (there are very interesting statements sometimes in Dewey's notes!) in which, after his attempt to reduce scientific judgments to moral judgments, or, in other words, the theoretical judgments to normative or pragmatic judgments, he refuses "to draw sharp lines between philosophy [*his philosophy*] as merely normative and the sciences as merely descriptive." Why does he refuse? Is it because he sees the inevitable consequences?

We are now in a position to understand the fundamental difference between James and Dewey in the problem under consideration; both start with the same end in view, which is to shake off intellectualism; both, again, when they examine conscientiously the problem, are forced, as they want to remain logical, to adapt their pragmatic theories to the requirements of reason. *But* James proves specially anxious not to lose sight of the end which he had proposed to his speculations, and more anxious to save the practical results than to offer a mere philosophical argument; thus, he remains true to the flag of pragmatism. Dewey, on the contrary, proves especially anxious to offer a fine and smooth argument, and thus allows himself to be driven away by his speculations from the purpose he had at first in view; he finds himself, at the end, to be the defender of a theory exactly opposite to that which he had intended to prove: and this just because he is the more conscientious of the two.

From this point of view, therefore, people are right enough when they maintain that Dewey is the most philosophical mind among the leading pragmatists, only, his philosophy is at the expense of his pragmatism.

It is well known that Peirce found himself caught in the same difficulty. He has admitted it, and the famous passage in Baldwin's *Dictionary* has been often quoted, in which he refuses to go all the

posséder en même temps deux représentations de la réalité morale, l'une subjective, l'autre objective" (p. 31). Such a concession is useless as long as we deal in a scientific manner with our topic. (Lévy-Bruhl had already adopted the distinction in his first book.) The conception of a *morale conditionnelle* introduced by A. Naville in the discussion (*Revue philosophique*, December, 1906) suffices to clear the field, and allows us once for all to ignore popular conceptions of ethics in science. I may add that the distinction made by Lévy-Bruhl does not side-track the discussion at all in his work.

way with too buoyant disciples. One ought now to compare Peirce's statement with a curious note of Dewey's—another case where a very significant statement is relegated to a foot-note: "The point of view which is here presented is, of course, distinctly pragmatic. I am not quite sure, however, of the implications of certain forms of pragmatism. They sometimes seem to imply that a rational or logical statement is all right up to a certain point, but has fixed external limits, so that at critical points recourse must be had to considerations which are distinctly of an irrational or extra-logical order. . . . It is just the opposite which I am endeavoring to sustain, viz. . . ." (p. 10). Yes, of course. There is the dilemma precisely: James sees well enough—without heralding it too loud—that in following logic to the end, there is no pragmatism left, and in order to be allowed to remain a pragmatist, it is necessary, at one certain point—to jump.* While Dewey, who obstinately persists in remaining true to logic, keeps of pragmatism nothing but the word, and lands in the *science des mœurs*.

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INFINITY AND THE GENERALIZATION OF THE CONCEPT OF NUMBER

IT is not very often that the student of philosophy has occasion to wander afar in the country of the mathematician, or that the mathematician is moved to follow the paths pioneered by the philosopher. Sometimes, however, the lack of definite boundaries suggests to each a more careful investigation of the other's habitat; for example, when the notion of infinity is under consideration. Here we should have not a trysting-place, but a battlefield, were it not for the fact that the underbrush hides the scouts from each other's sight, making it possible for the philosophers to report a treacherous and difficult pass, where the mathematicians, examining the same country, behold a clear and unobstructed roadway. Occasionally a straggler falls in with the other party and returns to oppose his report to that of his fellows, as gotten from new vantage-ground. This Professor Royce has done in taking over the mathematical concept of infinity to philosophy, and Mr. Bertrand Russell,

* "Materialism and agnosticism [read simply 'determinism'] even were they true, could never gain universal and popular acceptance, for they both, alike, give a solution of things which is irrational to the practical third of our nature" ("Will to Believe," p. 126). *Even were they true*: a man who would really believe in the possibility of proving logically that they are *not* true, would not have recourse to such hypothetical argumentation.

in formulating paradoxes arising from the infinite with philosophical dialectic. To the present writer, who has frequently been a sojourner with the mathematicians, it seems to be an important problem to determine what the facts really are, and, as preliminary to the task, he sets himself the problem of studying the mathematicians' report and examining the use that is, and that can be, legitimately made of it. In the question of interpretation, mathematics is especially open to error, for, from the nature of the case, its methods are preeminently suited to generalization, but are weak when it is a question of discovering subtleties of implication.

In all mathematical writings two sorts of infinities are distinguished, the cardinal and the ordinal infinite. This latter, however, need not concern us, as it aims directly at the definition of a certain kind of order in which the elements of certain classes may be put, while we are interested in the nature of the class or system itself, without reference to the order of its elements. The definition of the cardinal infinite is supposed to give us what we require.

To quote at once the classic definition: "A system S is called 'infinite' when it is similar (*i. e.*, can be put in one-one correspondence) with a proper part of itself; in the contrary case S is called a 'finite' system."¹ At first sight it seems as if nothing could be clearer than this definition, and it is generally assumed to be irrefragable. Unfortunately, in its applications it is not always so, and this will soon appear.

One great virtue of modern mathematics is that it consciously aims at avoiding self-contradictions and recognizes that the only possible proof of consistency lies in showing something existent to which its definitions and postulates apply, *i. e.*, something real, or at least imaginable, with respect to which we can interpret the definitions, or do all the things indicated by the postulates. This criterion is easily applied when geometry is in question, and it must also be applied to the definition of infinity. Consequently, we find with Dedekind: "Theorem: Infinite systems exist. Proof: My own realm of thoughts (*Gedankenwelt*); *i. e.*, the totality S of all things that can be objects of my thought, is infinite. For if s is an element of S , it follows that the thought s , *viz.*, the thought that S can be an object of my thought, is itself an element of S ." Professor Royce² suggests the case of a perfect map of England drawn on the surface of England as a demonstration of this sort. The class of whole numbers and of the points on a line has also been used. It is admitted that all these cases make appeal to a principle of complete induction, but this principle is probably grounded in logical intuition and its

¹ Dedekind, "Was sind und was sollen die Zahlen," p. 17.

² "The World and the Individual," Vol. I., p. 503.

validity can hardly be called in question. Accordingly, mathematicians, and sympathizing philosophers, are satisfied that the existence of an actually infinite class has been shown.

But in what sense? The thought collection is never realized, the maps are never completed, the numbers and points are never put into one-one correspondence with a part of themselves. Nor do we mean to imply any quibble concerning time. From a practical point of view a finite class may be easily indicated such that a temporal correlating of it with some other finite class could not be actually carried to an end. But it would be absurd to introduce such considerations here. The important thing is that, logically, an essentially uncompleted process is implied in the definition of an infinite class, for if there is any point at which a next and, as yet, untaken step is not defined the collection would thereby become not infinite, but finite. All that we have, then, is a certain type of open process, and certain classes admitting of a correlating process of this type. We have not even advanced far beyond Locke's conception when he says: "For, as our idea of infinity being as I think, an *endless growing idea*, but the idea of any quantity the mind has, being at that time *terminated* in that idea, . . . to join infinity to it, is to adjust a standing measure to a growing bulk; and therefore I think it is not an insignificant subtlety, if I say, that we are careful to distinguish between the idea of the infinity of space and the idea of a space infinite." In exactly Locke's sense, the only infinity defined as consistent, and therefore existing for the mathematician, is the "infinity of a system" and not "a system infinite." Also the characteristic of such classes is that they are not "static," but "dynamic," that is, in them new elements are always bubbling up. The infinity of a class demands a genuine growth in Locke's sense, for this is the significance of the open correlating process whereby infinity is defined. Satisfaction of the definition implies merely that the class possesses what might be termed an unlimited power of spontaneous self-generation.

Had the mathematician been willing to take his definition in this sense, there would have been nothing of which we could complain. To say that a class or system of things submits to a certain correlating process of subcollections of its elements with the whole, is to posit a property of the class, and this property may be taken as the essence of the class of classes that possess it, and this class contrasted with the class of classes that do not possess it. It is to be noted, however, that this opposed class, the finite, is only defined negatively; and there is danger when we begin to transfer properties from one to another in a pair of logically opposite classes, for a property may have a connotative accompaniment, essential in the one, but not

transferable to the other. This is what the mathematicians have neglected to consider. We shall find that, because the cardinal number is defined through a correlating process in the field of the finite, and because correlating processes also have meaning in the region of the infinite, or transfinite, they have carried over the definition of the cardinal number, without considering that it might make a difference that the correlation, on the one side, implied a closed process and the presence of all the elements, and, on the other side, an open process and unlimited pregnancy with new elements.

Cantor³ has expressed the belief that "mathematics is completely free in its development, and has only to pay attention to the self-evident condition that its conceptions are both free from self-contradiction and, in determinate relation, fixed by definitions, to the conceptions already present and verified. In particular, with the introduction of new numbers, it has only to give definitions of them by which such a definiteness, and, under circumstances, such a relation to the older numbers, are afforded that they can be distinguished from one another in given cases." There are many qualifying phrases here, but it is interesting to see how the task is carried out. Let us examine, in the case of cardinal numbers, the operations of making a transition from the finite to the infinite.

First, something about the finite cardinals. Two classes are said to be equivalent when they can be brought in one-one correspondence, and a class of such equivalent classes is said to be their cardinal number. That is, cardinal number connotes a way of establishing a one-one correspondence between classes of a particular sort, which amounts, practically, to the common-sense notion that it expresses the result of counting them. But with the finite numbers, the connotation is also involved that the elements are all there, and the process complete. Therefore, of two different cardinal numbers, it will happen that one can be called less than the other, when its process is insufficient to correlate the elements of the class of which it is the cardinal number with the elements of another class than which it is said to be less. In a similar fashion, addition appears by the superposition of one process on another which has been completed, and the definition of the result as the outcome of a new process, such that those classes of which it is the cardinal number may be called equal to the sum of the original classes.

For the finite numbers this is simple enough, and to Cantor's mind the extension to the transfinite involves no difficulty. Just as the finite cardinal number gives the type of certain classes, so there can be a type of those classes such that their elements can be put in

³ "Grundlagen einer allgemeinen Mannigfaltigkeitslehre," Leipzig, 1883, p. 33.

one-one correspondence with a part of themselves, and we have a cardinal number of an infinite class, analogous to the definition of the cardinal number of a finite class. It is unquestionable that there exist such classes of similar classes, and that therefore this cardinal number has some meaning. Furthermore, there appear to be infinite classes which do not have the same cardinal number, for whereas the collection of finite numbers and the collection of all the points in space can each be put in one-one correspondence with a part of itself, no one has yet succeeded in putting them in one-one correspondence with each other, and Cantor has proofs, which have not been refuted, that it can not be done. Granting, then, that different transfinite cardinal numbers, in some sense, exist, a very interesting situation is found, for there is no proof that these different numbers can be ordered in a linear series, *i. e.*, that they are analogous to the finite numbers in being distinguishable for the purpose of counting. To be sure, Cantor can prove that when any class is given, a class can be constructed that shall have a greater cardinal number than the given class. That might mean, however, that the two "growing" processes are so related that one must always be in advance of the other. An illustration of this theorem by Professor Huntington⁴ points quite definitely to this interpretation. "For example, let C denote the class of elements in a linear continuum, say, the class of points on a line one inch long; and let C' denote the class of all possible 'bi-colored rods' which can be constructed by painting each point of the given line either red or blue. Then the class of rods C' has a higher cardinal number than the class of points C , as may be proved as follows: In the first place, C is *equivalent to a part of C'* ; for example, to the class of rods in which one point is painted red and all the other points blue. Secondly, C is *not equivalent to the whole of C'* ; for, if any alleged one-one correspondence between the rods and the points were proposed, we could at once define a rod which would not be included in the scheme: namely, the rod in which the color of each point x is opposite to the color of the point x in the rod which is assigned to the point x of the given line; this rod would differ from each rod of the proposed scheme in the color of at least one point." In other words, one scheme of "growth" is imposed on another in such a fashion that the combined result is always in advance of that logically given with the first, and the misinterpretation of this as meaning that the second collection is greater than the first arises from carrying over to the transfinite a connotation true only of the finite, namely, that the elements of the class are given statically, a thing which our examination of the definition of infinity showed us is logically impossible. "To be given" has an ambiguity in mean-

⁴ Huntington, "Annals of Mathematics," 2d series, Vol. 7, 1905, p. 39.

ing, and the new concept is not "in determinate relations, fixed by definitions, to the conceptions already present and verified." Have we, then, a right to call these new types numbers?

The illusion that we have this right is strengthened by the fact that Cantor develops his theory in close connection with the concept of series, although it is understood that the cardinal number here is the "cardinal number of the *class of elements which occur in the series*, without regard to their order."⁵ Different types of series are definable, and it is possible to order some of these types of series.⁶ Also, there will be a cardinal number of the elements of these ordered series of series. But the very fact that the transfinite numbers are dependent for definition on series of series, while vouching for their possibility in some sense, also points to the explanation of them given above as due to the superimposition of process on process.

It is hard for the mathematician to see it this way. To him, the objection is insuperable that all the elements of a transfinite collection are given when the collection is defined, and all the points of a line are given when the line is given. To deny this seems to him absurd. Yet the denial is possible when we get rid of the ambiguity of the word *given*. Suppose a line, and there is a possibility of finding as many points as you please. The line is infinitely pregnant with points, it is analyzable into points, but *it can not be synthetically constructed of points*. If it were, the points would be given in the assumed sense of *given*, which, with Locke, we believe to be invalid. The linear continuum can be mathematically defined, and it gives us such a method of analyzing a line into points that no other process of analyzing it shall be continually in advance of this one, and so seem to give us more points. We have, then, practically reduced the line to points, but it is the error specified by Locke to consider these points as statically given.

On the basis of these considerations, it is evident that the most that can be meant by Cantor's transfinite numbers is that, given an open process, the type of infinity, it is possible to define a modification of this process through elements related to the elements originally implied in such fashion that the combined implication of these processes shall be essentially non-equivalent to the implication of the original process. But this does not guarantee that there are more elements in the one case than in the other, any more than the fact that to correlate a set of things by painting them both red and green, which involves the putting on of one color before the other and so double work, means that there are more things than there would have been had they been merely painted green, or than the fact that the

⁵ Huntington, *loc. cit.*, p. 40.

⁶ Cf. Huntington, *loc. cit.*, p. 35

argue in detail and with reference to concrete conscious experiences, instead of implying, without argument, that the conception of self has no "descriptive value . . . in dealing with perception, or impulse, or any other special topic of psychology." That is, I wish that he would argue the erroneousness of my teaching that will and emotion are not adequately described except as including the consciousness of uniqueness; that recognition includes consciousness of persistence; that will and faith must be regarded as consciousness of activity; and that even perception is incompletely distinguished from other experiences unless it is conceived as passive and as sharable consciousness. My claim is precisely that psychology when it is purely structural, and even when it deals with abstract functions—when, in a word, it consistently rules out reference to the relatedness, the persistence, the activity, and the passivity of the conscious self—gives us inadequate description. I wish that these specific applications of my general doctrine might receive criticism.²

There remains Tawney's emphatic assertion that "the persistence, inclusiveness, relatedness [why omit the 'uniqueness'!] of the . . . self are not immediate." In the end this is, of course, a case of opposition between my introspection and my critic's, and as such is removed from the sphere of argument. I still believe, however, that there is no warrant for denying the immediate awareness, in all consciousness, of a self unique, persistent, and related. I am convinced that the denial is made solely because of the needless and misleading assumption that the immediate realization of oneself is identical with a discriminating, reflective thought about oneself. Of course, such reflective consciousness of self is characteristic of complex experiences only; but a dim, vague, yet none the less real, awareness of self is the very warp and woof of consciousness.

May I suggest, in conclusion, that the difference between my view and Dr. Tawney's is due, perhaps, to an overemphasis of the analogy between the object of psychology and the object of the other sciences? Psychology is science, not philosophy, first because it is concerned with facts as such, and second because, like other sciences, it deals with an intentionally limited group of facts which it accepts without puzzling about the further irreducible nature of them. In both these ways the object of psychology resembles the object of the other sciences. But the resemblance should not blind us to a real contrast. In the non-psychological sciences I study the objects of my consciousness, thus implicitly conceiving consciousness as subject. As a psychologist, on the other hand, I must recognize without

² Professor M. F. Washburn offered in this JOURNAL (Vol. II., p. 715) such a criticism of my theory of emotion, and Dr. Tawney cites it. I have tried (this JOURNAL, Vol. V., p. 121) to meet the criticism.

attempting, philosophically, to explain the fact that consciousness is both subject and object—that I am conscious of myself as conscious. Thus, it is altogether likely that the object of psychology must receive treatment unlike that meted out to the physicist's object. Does not Professor Tawney run a risk of ignoring a real distinction if he confines psychology too closely to the categories of the physical sciences?

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REVIEWS AND ABSTRACTS OF LITERATURE

Ethics. JOHN DEWEY and JAMES H. TUFTS. New York: Henry Holt & Co. 1908. Pp. xiii + 618.

If this is not the ideal text-book in ethics for which we have been waiting so many years, it is, at least, a very good substitute for it. Certainly no more valuable fruit of the recent ethical revival has been produced than this, nor one which will itself produce more future good, for it is bound to be but the first of a new type of texts. It marks the end of the abstract, speculative treatises and the beginning of the positive studies of established human values. The moral life is presented as a reality about which there can be no more question than about the reality of the physical life, and, indeed, as that in which the latter finds its completion and explanation. Theories and systems are strictly subordinated to the facts and are not presented until the facts are clearly given. No student can rise from the study of this book feeling that he has been engaged with questions of purely academic interest. On the contrary, he can not but realize that it is the origin and solution of the problems of his own life with which he is here concerned. Reality is the dominant note of the book.

To produce this effect the genetic method and the new materials furnished by economics and sociology have been freely used. In the first of the three main divisions of the book we have a sketch, somewhat needlessly detailed and perhaps complex, of the development from group action to reflective morality and of the most important factors in the process. As illustrating this, outlines of the Hebrew, Greek, and modern developments are given, the last of which presents excellent material for discussion. A final chapter brings out the continuities and contrasts of primitive group action and individual morality, together with a suggestion of the vices and problems arising from the development.

Part II., which is Mr. Dewey's contribution to the work, contains the analysis and interpretation of the reflective moral life, the growth of which Part I. has traced. The first three chapters discuss the moral situation, in which the individual is compelled to choose consciously between conflicting ends; the problems which arise for practice and theory as a result of such choice; and the types of ethical theory based upon

varying emphasis on the elements in the moral choice. Especially valuable for the student here is this correlation between psychological analysis of voluntary conduct and the types of ethical theory. There follows next an extremely lucid discussion, reminding one more strongly of the author's earlier, than of his later, writings, of the main problems in the theory of morals. Throughout, the evident purpose to avoid abstractness and realize concreteness and wholeness is attained. Indeed, in the discussion of the relation between subjective and objective morality the statement of the identity of the two is so absolute as to lead to misunderstanding without further qualification. Only if we take an action in its relation to the total foreseen results and rigidly rule out extraneous effects can we even in faith say, "the mixture of good and evil in the results and the mixture of good and evil in the motives are proportionate to each other" (p. 260). These qualifications are implied apparently, but the total impression is misleading.

It is not necessary to outline the author's naturalistic idealism. It is John Stuart Mill's philosophy of life freed from the illogical hedonism which Mill thought was its basis and stated in the light of the theory of evolution. The good is happiness, and happiness consists, not in the attainment of pleasure, but "in the agreement, whether anticipated or realized, of the objective conditions brought about by our endeavors with our desires and purposes" (p. 281). This realization of ends, moreover, is not a random process, a seeking of any and every pleasure, but the development of an organic system of life. Pleasures differ in quality according to the nature of their implied conditions, so that in the interests of a larger and more inclusive self it is often necessary to choose the lesser but better pleasure. This means that the complete good of man must be a social good and that he must seek this good, not because he himself will get most pleasure therefrom, but because he is a social being the development of whose nature is possible only through society. The common life is thus not a means to his individual good, but is itself his good. The old virtue and happiness problem is thrust aside as ethically unmeaning. "The identity of individual and general happiness is a moral matter; it depends, that is, upon the reflective and intentional development of that type of character which identifies itself with common ends, and which is happy in these ends just because it has made them its own" (p. 302). Hence, too, the need of moral democracy in social effort. "The vice of the social leader, of the reformer, of the philanthropist and the specialist in every worthy cause of science, or art, or politics, is to seek ends which promote the social welfare in ways which fail to engage the active interest and cooperation of others. . . . But in truth a common end which is not made such by common, free, voluntary cooperation in process of achievement is such in name only. It has no support and guarantee in the activities which it is supposed to benefit, because it is not the fruit of those activities. . . . There is no way to escape or evade this law of happiness, that it resides in the exercise of the active capacities of a voluntary agent; and hence no way to escape or

evade the law of a common happiness, that it must reside in the congruous exercise of the voluntary activities of all concerned. The inherent irony and tragedy of much that passes for a high kind of socialized activity is precisely that it seeks a common good by methods which forbid its being either common or a good" (pp. 303, 304). The author's summary of his doctrine can not be better put: "Our final word about the place of the self in the moral life is, then, that the problem of morality is the formation, out of the body of original instinctive impulses which compose the natural self, of a voluntary self in which socialized desires and affections are dominant, and in which the last and controlling principle of deliberation is the love of the objects which will make this transformation possible. If we identify, as we must do, the interests of such a character with the virtues, we may say with Spinoza that happiness is not the reward of virtue, but is virtue itself" (p. 397).

Part III., which is mainly the work of Mr. Tufts, is a statement of principles and a discussion of problems in the political, economic, and domestic orders. It is here that we are to look for the exemplification and verification of the principles suggested in the earlier portions of the book, and it is here that the average student of ethics will find most of value, or, at least, will find that which gives to the whole its unique value, for it is here that he finds the practical help for which the average student approaches ethics. The problems are all *life problems*, and the democratic principle of determination is applied with a singular persistence and definiteness. The problems are not all solved, yet at least we are not left with mere glittering and dazzling generalities, but are given some definite insight into what is implied to-day in the promotion of the common good through the free cooperation of individuals.

Judging the book as it demands, as a text-book, there are a few points which seem unsatisfactory. The first chapter, on the definition and method of ethics, is not only inadequate, but misleading. It is quite true that former texts have almost invariably overelaborated this preliminary matter, but to dispose of the whole problem of normative sciences and their method by the statement that ethics "has to study the inner process as determined by the outer conditions or as changing these outer conditions, and the outward behavior or institution as determined by the inner purpose, or as affecting the inner life," is surely insufficient. The implication is that ethics is a science of like nature and method with psychology and sociology, but concerned with the relation of the agent to his social environment, yet we find the further statement, "to study choice and purpose is psychology; to study choice as affected by the rights of others and to *judge it as right or wrong* by this standard is ethics" (p. 3, italics mine). This task of judging conduct as right or wrong is interesting enough to demand much further explanation. Certainly the scope even of this text-book is not satisfactorily stated.

Again, not only wearied teachers, but eager students, will miss the absence of any complete discussion of freedom. Such discussion in the past has been oversubtle and metaphysical, tending to confuse or edify

rather than enlighten, yet this can hardly justify the omission of the metaphysical altogether and the restriction to the social, economic, and legal aspects of the subject. The question is in the air and demands a thorough analysis to determine its really significant bearings.

And, finally, there is one other point which may seem a sin of omission in the eyes of some. In the description of the ideal life the more mystic traits fail to receive due consideration. This is perhaps due to the very excellence of the book as practical and common sense in all its positions, and yet that mystic life has been a persistent type from the days of the Greeks to our own times and its peculiar blessedness is intense and interesting enough for detailed consideration. To men of this type the democratic social good of our authors might seem a lower and uninteresting ideal.

But these perhaps inevitable omissions can weigh little against the general utility of the work both as to form and content. The references are abundant and interesting, the index and table of contents adequate, and the style fresh and vigorous. It should appeal not only to the special student of ethics, but to those in economics, politics, and sociology as well.

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The Application of Statistical Methods to the Problems of Psychophysics.

F. M. URBAN. Philadelphia: The Psychological Clinic Press. 1908. Pp. 221.

This book covers three topics: a description of the author's experiments on judging lifted weights; an exposition of certain methods of applying the calculus of probabilities to psychological experiments; and a discussion of the metaphysical implications of the treatment of methods.

Finding from experiment that there was no difference of stimuli which would always be judged the same suggested that here was the empirical realization of underlying probabilities of judgments of certain kinds, and hence that the calculus of probabilities is applicable. This concept is first applied to the understanding of a cause, which is defined (p. 20) as "a group of conditions which gives a certain probability to the event." Whether variation in the results of an experiment is due to change in the controlled elements in this group of conditions or to change in the chance elements may be determined by comparing the results with the probability integral.

The second application of the concept of probability is to the method of finding the threshold of sensation. The threshold in the direction of increase of stimulus is defined as that amount of difference for which there is one chance out of two that a judgment "greater" will be given (p. 60). The method based on this definition makes it possible to avoid the disturbance due to expectation by presenting the stimuli in irregular order, without resorting to the so-called error methods for computing

results. As had been shown previously, these error methods rule out the notion of threshold in any absolute sense, for they assume that the size of the just perceptible difference depends on the number of observations, and thus that theoretically there is no difference which can not sometimes be just perceptible. Furthermore, the author holds that his definition makes unnecessary the notion of sensation elements, the threshold being merely a difference possessing a certain probability of having a certain judgment passed upon it.

A third application of the concept of probability is made in developing the notion of psychometric functions, "the functions which give the dependence of the probabilities of the judgments on the differences of the stimuli" (p. 106). By supposing these functions to be analytic, finding them regular in the region of the threshold, and interpolating in this part of their course, values of probabilities for stimuli not actually tried are found. Thus the psychometric functions give a new method of comparing the threshold and a method of comparing the point of subjective equality in different subjects. This point is found to be where the psychometric function of the judgments "equal" reaches its maximum. The author uses his experiments to illustrate step by step all three of his applications of the concept of probability.

To the reader with metaphysical interests the last chapter will be most suggestive. In this the author considers the relation of mental and physical facts in general. He maintains that mental phenomena tend to drop out of scientific discussion because of the use of the category of substance and the difficulties involved therein. He suggests that the category of relation avoids these difficulties. The most general form of a relation is that of a non-uniform, discontinuous function, but since a description with such functions can not be exhaustive, science restricts itself to uniform, continuous, analytic functions. In reply to the Moscow school of idealists, who hold that the existence of chance events and "half-analytic" functions shows that some events are not causally necessitated, it is pointed out that the randomness of such events is due to excessive complication of causes, and thus the calculus of probability is an argument, not for the lack of causality, but for uniform causality. The author finds that most arguments that the relation of mental and physical facts is an analytic function have assumed too much. They have gone as follows: There is a relation between the series of mental events and the moments of time; there is a relation—supposed by physics to be expressible in an analytic function—between the series of physical events and the moments of time; therefore, the relation between mental events and physical events is expressible in an analytic function. This argument either begs the question or is erroneous, because, unless the relation between mental events and the moments of time is an analytic function, which is the point at issue, it argues that the combination of an analytic and a non-analytic function gives an analytic function, which is not true. Dr. Urban disclaims any position as to the nature of the relation of mental and physical facts, but points out that the psycho-

metric function, serving as the basis for an infinity of statements from a finite number of observations, is supposed to be analytic.

Dr. Urban's treatment of the application of the theory of probability to psychophysical experiments is a satisfying step toward exactness. Thus, to the question "What difference is just perceptible?" he adds the question "Just perceptible how often?" He has shown new ways in which the mathematical handling of the notion of probability may supplement actual experiment. When, however, we come to his treatment of the epistemological implications of his work we find it hard always to connect his experimental results with his metaphysical discussion. Thus, if he has merely shown that empirical data from psychophysical experiments may be subjected to a process of idealization like that used for physical observations, we can not feel that he has taken us very far. If his result is to show that as the difference in stimuli increases the probability that this difference will be recognized increases, we are grateful for making exact a result of common experience. If, as the careful discussion of the relation of mental and physical facts would seem to indicate, we are to infer that the nature of the relation involved in the psychometric function may some time give us a hint of the nature of the relation of mental and physical states, it seems that the psychometric function will be extremely useful in itself, but will not supply the epistemological relief indicated. The psychometric function shows the relation of the probability of certain judgments to the stimuli. The judgments are the result of a group of causes composed of the stimuli and the psychophysical condition of the subject. A function which shows the relation of the predictability of this result to one factor in the group of causes is valuable in itself, but can it throw much light on the relation of causes within the group, on the relation of the stimulus to the psychophysical condition of the subject?

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JOURNALS AND NEW BOOKS

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. May 5, 1908, Bd. 47, Heft 3. *Abteilung für Psychologie. Untersuchungen über die Temperatursinne* (pp. 161-202): SYDNEY ABRUTZ. - First part of the report of an investigation of some of the still unsettled questions in the psychology of temperature sensations. The reaction times to the paradoxical cold sensation and the sensation of heat are found to be identical, and about twice as long as the reaction time to the sensation of warmth. The reaction time to heat, for the same stimulus ($+50^{\circ}\text{C.}$), varies with the skin area. Reaction time to heat on a given area decreases with increase of the intensity of the stimulus. The absolute stimulus limen for heat varies directly with the local skin temperature, the relative limen becoming lower as the skin

- Davenport, H. J. *Exercises in Value Theory*. Based upon "Value and Distribution." Chicago: The University of Chicago Press. 1908. Pp. 32. 25 cents.
- Del Vecchio, Georgio. *Concetto della natura e il principio del diritto*. Milan, Turin, Rome: Fratelli Bocca. 1908. Pp. 174. 5 L.
- Mentré, F. *Cournot et la renaissance du probabilisme au XIX^e siècle*. Bibliothèque de philosophie expérimentale. Paris: Marcel Rivière. 1908. Pp. viii + 649. 12 fr.
- Paulsen, Friedrich. *German Education, Past and Present*. English translation by T. Lorenz. London: T. Fisher Unwin. 1908. Pp. xx + 310. 5s. net.
- Picard, Roger. *La philosophie sociale de Renouvier*. Systèmes et faits sociaux. Paris: Marcel Rivière. 1908. Pp. 344. 7.50 fr.
- Royce, Josiah. *Race Questions, Provincialism, and Other American Problems*. New York: The Macmillan Co. Pp. xiii + 287. \$1.25 net.

NOTES AND NEWS

WE take the following from Professor James's contribution to the October *Hibbert Journal* on "Hegel and his Method": "Merely as a reporter of certain aspects of the actual, Hegel is great and true. But he aimed at being something far greater than an empirical reporter, so I must say something about that essential aspect of his thought. Hegel was dominated by the notion of a truth that should prove incontrovertible, binding on every one, and certain, which should be *the* truth, one, indivisible, eternal, objective, and necessary, to which all our particular thinking must lead as to its consummation. This is the dogmatic ideal, the postulate uncriticized, undoubted, and unchallenged, of all rationalizers in philosophy. '*I have never doubted*,' a recent writer says, that truth is universal and single and timeless, a single content or significance, one and whole and complete. (Joachim, 'The Nature of Truth.') Advance in thinking, in the Hegelian universe, has in short to proceed by the words *must be* rather than by the weaker words *may be*, which are all that empiricists can use. Now Hegel found that his idea of an immanent movement through the field of concepts by way of 'dialectic' negation played most beautifully into the hands of this rationalistic demand for something absolute and *inconcussum* in the way of truth. It is easy to see how. If you affirm anything, for example that *A* is, and simply leave the matter thus, you leave it at the mercy of any one who may supervene and say, 'Not *A*, but *B* is.' If he does say so, your statement does not refute him; it simply contradicts him, just as his contradicts you. The only way of *securing* your affirmation about *A* is by getting it into a form which will by implication negate its negation in advance. The mere absence of negation is not enough; it must be present, but present with its fangs drawn; your *A* must not only be an

A, it must be a non-not-A as well; it must already have cancelled all the B's or made them innocuous by having negated them already. Double negation is thus the only form of affirmation that fully plays into the hands of the dogmatic ideal. Simply and innocently affirmative statements are good enough for empiricists, but unfit for rationalist use, lying open as they do to every accidental contradictor, and exposed to every puff of doubt. The final truth must be something to which there is no imaginable alternative, because it contains all its alternatives inside of itself as moments already taken account of and overcome. It involves its own alternatives as elements of itself, is, in the phrase so often repeated, its own other, made so by the *Methode der absoluten Negativität*. Formally, this scheme of an organism of truth that has already fed as it were on its own liability to death, so that, death once dead for it, there is no more dying then, is the very fulfilment of the rationalistic aspiration. That one and only one whole, with all its parts involved in it, negating and making one another impossible if abstracted and taken singly, but necessitating and holding one another in place if the whole of them be taken integrally, is the literal ideal sought after, it is the very diagram and picture of that notion of the truth with no outlying alternative, which so dominates the dogmatic imagination."

WE take the following from *Nature*: "An important essay on logic and the continuum has been contributed to the *Bulletin of the American Mathematical Society* for June by Professor E. B. Wilson, of Boston, U. S. A. It deals largely with Zermelo's proposed solution of the problem, first stated by Professor Georg Cantor in 1883, as to whether every set, and in particular the continuum, can be well ordered. In a post-script the author refers to Schönflies's report on the same subject. Among Professor Wilson's conclusions, the view is put forward that the well ordering of any set is of practically no significance, and is quite worthless apart from an algorithm which accomplishes the ordering—an algorithm which shall not require an operation which transcends the cardinal number of the given set. This quotation must be regarded as a mere indication of the general character of the questions discussed in the paper."

PROFESSOR WILLIAM JAMES returned on October 16 from Oxford, England, where he had gone to deliver a series of eight lectures on "The Present Position of Philosophy."

DR. DANIEL STARCH, instructor in experimental psychology in Wellesley College, has been appointed instructor in psychology in the University of Wisconsin.

MR. F. C. BECKER, assistant in philosophy in Columbia University, has been appointed instructor in philosophy in the University of Illinois.

MR. E. G. HARTMANN (Columbia) has been appointed instructor in philosophy at Acadia College, Nova Scotia.

DR. ALBERT F. BUCK (Harvard) has been called to the department of philosophy in the University of Vermont.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE EVOLUTION OF PRAGMATISM¹

THE history of the movement called pragmatism has been a confused one. Because of the unfamiliarity of the theory or because of the nature of the debate considerable misapprehension has resulted on both sides of the discussion. It is a matter for congratulation, therefore, that the situation has of late begun to clear. Criticism has exerted vigorous pressure from without the school. The inner development of the diverse elements in the movement has been promoted by prolonged reflection. There has existed withal a large amount of essential agreement among the pragmatic leaders from the beginning. The resultant effect has been twofold. On the one hand, opinion has crystallized concerning certain fundamental principles. On the other, differences of view, actual or potential, have developed concerning positions which enter into the central doctrine, or which are correlated with it. In Spencerian phrase, both integration and differentiation have characterized the development of the movement. And both will be illustrated, if we go on to specify some of the principal lines of progress:

1. Pragmatism as a methodological doctrine. Concerning this point, at least among English and American pragmatists, opinion is unanimous. In the first instance, it is agreed, and fundamentally, the principle is a principle of method. Whatever else the doctrine may suggest, to whatever further conclusions it may lead or tempt, it proposes primarily a method of thought and inquiry—a method which is inherent in all thinking when this is rightly understood, one which has been victoriously followed by the natural sciences, and which is now introduced into philosophy for the latter's regeneration and revival. And the benefits of this method are held not to accrue to thought alone—it brings knowledge into touch with life and promotes action as well as cognitive work.

The school is once more agreed in the use which it makes of this limitation. The strict conception of the doctrine as a principle of

¹ Read before the Third International Congress of Philosophy, Sect. IV., *Logik und Erkenntnistheorie*, Heidelberg, September 2, 1908.

method forms its primary defense against the charge of positivism or agnosticism. This accusation is false, the pragmatists reply, or rather it is irrelevant, for in itself considered our view is not a theory of things, not a metaphysic, but a method of inquiry. It is compatible with various types of philosophical conviction. As a matter of fact, it is accepted by thinkers who come to diverse conclusions concerning the world and human life.²

It would be easy to raise questions here. For merely as method, pragmatism may be taken in narrower or wider meanings. Is it possible, for instance, to maintain the distinction drawn by James and others between the pragmatic method and pragmatism as a theory of truth?³ Or, if this is practicable, is it perchance accomplished by construing the method in a vaguer rather than a more precise and definite sense? Further, and more generally, it may be queried whether the doctrine can be successfully confined at all within the methodological field. Can methodology itself, can "logic" be discussed without touching on broader issues which lead thought far afield? On such questions as these the thought-history of the recent past, say from the '60s of the last century onward, might throw some needed light. But as my purpose in this paper is not so much to criticize as to formulate, I pass on to a second principle on which the pragmatists are agreed:

2. Pragmatism is not individualism or subjectivism—as so many of the critics have contended. On the contrary, it is inherent in the doctrine to take account of the universal, objective factors in thought and life. The explicit statement of these positions has been developed by the pragmatists in rebuttal of hostile attacks. And they maintain that the unfriendly interpreters of their doctrine have taken advantage of the defects which are inevitable in the first formulation of new and pregnant views. However this may be, it is essential to note in the present situation the energetic repudiation of subjective conclusions by the pragmatic leaders. In this, of course, the emphasis varies somewhat with the different points of view. Schiller dwells upon the common or social moment in cognition. With him man is the universal measure, but man as *man*, not *qua* individual—since even Protagoras has been maligned by the Platonic interpretation of the principle.⁴ James is more emphatic concerning the relation of truth and knowledge to "reality"⁵—to things of sense, or, in his varying phrase, the flux of sensations, and their relations;

² Cf. Schiller, "Studies in Humanism," pp. 16-21; James, "Pragmatism," pp. 43-55; Dewey, "What does Pragmatism Mean by Practical?" this JOURNAL, Vol. V., pp. 86-99.

³ James, "Pragmatism," pp. 54 ff.; Dewey, this JOURNAL, Vol. V., pp. 85-88.

⁴ "Studies in Humanism," pp. 38, 316-320.

⁵ "Pragmatism," pp. 205 ff., 229 ff., 243 ff.

to the inner relations of ideas; to the fundamental body of truth previously established. Thought, he urges, is pent in or wedged in, even on the pragmatic theory, by its objective references, and the suggestion of subjectivism becomes a baseless charge. James's realistic tendency is evident here. In fact, he sometimes⁶ fears that the humanistic form of the doctrine is "compatible" with solipsistic or agnostic views.⁷

Already, however, our discussion of method is verging on the pragmatic theory of truth. The same mingling of interests is involved in a third problem:

3. The relation of pragmatism to humanism. Humanism is more especially the work of Schiller, although Schiller has been inspired by the influence of James, and the latter also shares in many of his conclusions. In the hands of either, of course, the theory is not a new development of the movement, though one which has become more distinct and explicit as the movement in general has gathered force. In itself considered humanism is broader than pragmatism. It contains the latter, but goes beyond it. As defined by Schiller, it emphasizes an inclusive view of knowledge.⁸ Psychology shows that, as a matter of fact, the cognitive processes are everywhere shot through with desire, emotion, will, even as they are always led on by interest and purpose. Logic, then, should take account of these factors, should endeavor to evaluate and regulate them, not ignore or reject them, as intellectualism so long has done. Thought is everywhere purposive and personal—its depersonalization forms the primary error of the non-pragmatic schools.

Humanism, so construed, is more hospitable than pragmatism to metaphysical conclusions. It also, as Mr. Schiller thinks, has a wider methodological value. Pragmatism he views as a type of logical or noetical theory. Humanism possesses "a method which is applicable universally, to ethics, to esthetics, to metaphysics, to theology, to every concern of man. . . ."⁹

The full explanation of this position must be left to its author. Evidently, however, differentiation of the doctrine is going on, even in the methodological sphere. The narrower pragmatic method and the broader methodology of humanism are not in all respects identical. And important issues depend on the adoption of the one or the other of the differing standpoints.

4. The varieties of the pragmatic method in its stricter meaning.

⁶ *Philosophical Review*, January, 1908, pp. 15-17.

⁷ Dewey also maintains the realistic character of his theory; cf. "Essays Philosophical and Psychological in Honor of William James," pp. 53-80.

⁸ "Studies in Humanism," pp. 1-21.

⁹ "Studies in Humanism," p. 16.

The discussion of humanism has brought the argument to the subject of method pure and simple. The question raised whether there are no distinctions incident to method narrowly interpreted, either internal distinctions of application. This problem will be best considered under several subheads:

(a) The pragmatic method varies with its applications to different subjects. This has been recognized of late by friends of the critical standpoint. Professor Lovejoy has contented himself with thirteen different pragmatisms, just as a baker's dozen in the English proverb.¹⁰ Before Lovejoy, however, pragmatism emphasized the need for drawing accurate distinctions in every operative act, he urges, involves a specific purpose. Accordingly, that account be taken of these various purposes and their respective implications.¹¹ And Dewey, in his noteworthy essay, James's "Pragmatism," asks the crucial question, "What does pragmatism do practically really mean? In reply, he distinguishes between the application of the term to objects, to ideas, to actions. Applied to an object, it means "*the future responses which the object requires of us or commits us to.*" Applied to an idea, it means "the changes which the idea as an attitude effects in objects." Applied to truths or beliefs, it involves the question of "their furtherance." And these differences of meaning, he further argues, bear on the interpretation of pragmatism its uses to which it may be put.¹²

On the last of these several applications Dewey places special emphasis. And rightly so, for it raises the question of values. This calls for treatment under a separate heading.

(b) Pragmatism and judgments of value. Here distinctions may be drawn. In certain meanings of the term, pragmatism essentially involves evaluating thought. So much so that it has been often charged that the pragmatic theory reduces everything to the expedient, the useful, or the good. But these charges repel the charge, and are themselves engaged in differentiating the doctrine. James recognizes the intellectual working of pragmatism as their direct furtherance of life.¹³ Schiller defends the value of science by its material results and the verification of its postulates by their spiritual results.¹⁴ Dewey, in the reference has just been made, defines valuation in the

¹⁰ "The Thirteen Pragmatisms," this JOURNAL, Vol. V., p. 10.

¹¹ "Studies in Humanism," *passim*.

¹² This JOURNAL, Vol. V., pp. 88 ff.

¹³ "Pragmatism," pp. 213, 216-217.

¹⁴ "Studies in Humanism," pp. 359-360, 362 ff.

as dealing with truths or beliefs which have already been accepted; and reaches the conclusion that such appreciation adds nothing to the evidence on which they rest.¹⁵

It is difficult at this point to speak without hesitation. It is possible that the writer does not fully grasp Dewey's position. In particular, two of his recent and characteristic utterances can with difficulty be harmonized in regard to the point now under discussion. The argument of "Beliefs and Realities"¹⁶ bears decidedly in favor of the faith which is based on values. The review of James distinctly criticizes, though with consideration, the appeal to values in the decision of ultimate questions. If this divergence from the views of James and Schiller is fixed, it indicates a cleavage within the school. In any case, the discussion has suggested a fundamental problem, with which pragmatism is bound to deal and around which its inner development must in part of necessity center.

(c) The applicability of the pragmatic method, Or, in other words, to what subject-matters may it properly be applied? This question, as will be seen, is connected with the one preceding. For if the method is to be used in relation to transcendent questions, reliance must, at least in part, be placed upon evaluation. Or the problem may be conceived more broadly—whether the pragmatic method may at all extend its scope beyond experience, and the reorganization of the latter. The issue has been often pressed by critics from without. Some recent indications point to its emergence within the school itself. And this would seem a probable result. For once more we have come upon a vital problem, germane to the principles of the movement and needing solution in order to their exact determination and employment.

5. Pragmatism and metaphysics. So far we have considered pragmatism as method, with incidental references to its theory of truth. As such the doctrine has been distinguished from its metaphysical connections. Nevertheless, it easily allies itself with metaphysics, even with definite types of metaphysical conviction. Here, finally, evolution has been going on, and differentiation within the pragmatic group. James and Schiller are, perhaps, most nearly akin in their metaphysical, as in their noetical views. Freedom, pluralism, personality, theism, appeal to them both, though here and there differences of emphasis or of construction may be noticed. Dewey, in the paper quoted, has given intimations of a different doctrine. Speaking of the personal factor in the constitution of knowledge and reality, he suggests an interpretation of personality

¹⁵ Pp. 89 ff.

¹⁶ Presidential address before the American Philosophical Association, 1905; printed in the *Philosophical Review*, XV., 2, March, 1906.

quite other than that which is favored by his more humanistic colleagues: "According to the latter view, the personal appears to be ultimate and unanalyzable, the metaphysically real. Associations with idealism, moreover, give it an idealistic turn, a translation, in effect, of monistic intellectualistic idealism into pluralistic voluntaristic idealism. But according to the former, the personal is not ultimate, but is to be analyzed and defined biologically on its genetic side, ethically on its prospective and functioning side."¹⁷

As method, then, as epistemology, in its metaphysics, pragmatism is evolving. Integration and differentiation have both been taking place. The relative predominance of these two factors has in each instance been determined largely by the stage of progress reached. So it must also be in the future development of the movement. On the Continental situation the writer does not presume to pronounce. In Britain and the United States both tendencies seem destined to persist. But it is evident that the process of analysis and distinction has of late been gaining, and it seems likely that it will continue to gain ground.

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AUTOMATIC PHENOMENA OF MUSCLE-READING

IN the discussion recently conducted in this JOURNAL and elsewhere relative to the interpretation of so-called subconscious phenomena, the reader is confused by the rapid shifts in the arguments from the philosophical to the psychological level.

At times, apparently, the issue is wholly a matter of the writer's creed as to the mind-body relation. To a thoroughgoing parallelist, automatic phenomena just because they are physiological have also a psychical counterpart. To the interactionist, the maintenance of a causal relation between brain and consciousness makes lapsed awareness so easily accounted for in terms of the physiological that for him the sudden emergence or subsidence of consciousness causes no embarrassment. So far, the interpretation of the phenomena under dispute seems largely a matter of speculative choice.

But presently the level shifts in an attempt to realize intimately what consciousness is. As a matter of introspective self-respect, as well as of verbal sanity, one may feel a strong distaste for the conception of an unconscious consciousness, a distaste only partially overcome by Dr. Marshall's suggestion that consciousness be no longer defined as "awareness," but rather as "psychic existence,"

¹⁷P. 97.

for in that case one simply surrenders a comforting conviction of first-hand knowledge of what consciousness is and submits that, so far as one's personal testimony is concerned, it may turn out to be anything—even the merely physiological. For the same reason, the hypothesis of a coconsciousness does not comfort one much theoretically so long as the partnership must be taken on faith. The puzzle comes when the company consciousness is vouched for by a member of the firm itself. It is the reporting of an order of facts unlike those with which the psychologist has, as a usual thing, first-hand information that has inaugurated the discussion and induces scrutiny first of the alleged facts themselves, and later of hypotheses in the light of these facts. And the whole discussion as psychological should turn, one would think, upon a more rigid determination of what the facts are; for clearly the real clash in the argument arises just from an uncertainty as to where the facts cease and interpretation begins.

But again. There exists a conviction, fairly widespread, that the function of consciousness is that of adjustment, that is, that consciousness appears at moments of conflict; and there is reluctance in admitting that adjustment may take place just as well without it, that novel conclusions, as some observers report, may issue apart from it. Rather than yield to the merely physiological the faculty of issuing in new adaptations, of working out problems in addition or writing poems, it seems in certain quarters preferable to grant consciousness, if not awareness, to all selective activity, though the philosopher may, of course, turn the tables by maintaining not only that the physiological is selective, but also that it alone can be selective.

In general, however, we have, as it were, a working notion of what we expect the physiological to do. We trustingly turn over to it the performance of sundry routine acts, but if otherwise it runs on its own account, we expect it to do trivial and rather stupid things. Nor does it disappoint us for the most part. Little wonder, then, that we are startled if it takes to presenting us—or, more likely, some one else—with solutions to difficult problems, or indulges in lively autobiographies. Such reported elaboration on the part of the physiological, so called, seems, moreover, not only to be a rare occurrence, but to be also the privilege, for the most part, of those who are both untrained in introspective observation and highly susceptible to suggestion. Therefore, again, in the light of our yet indeterminate information-misinformation, some would insist—the bare facts of all so-called subconscious phenomena seem worth recording. Will they actually exhibit intelligence, as we usually rate intelligence? Or will they bear the seal of the mechanical, the habit ?

The present article has no purpose other than to make any attempt at interpretation—some very simple phenomena, the value of which record is, perhaps, enhanced by the fact that all of the observations have been made on normal subjects, few of whom were practised in self-observation. The attempt to portray somewhat in detail the interplay of voluntary and automatic factors in a defined situation.

The method employed in the experiments under consideration involved the use of muscle-reading, in which the writer observes the movements of the hand and arm. The observations on automatism were made incidental to a series of tests designed largely for other ends.

Muscle-reading depends, it will be recalled, upon the subject's ability to direct his attention given involuntary movements of the hand and arm through variations in muscular tension. It is further, that the early investigations of muscle-reading in this country, and the more recent one by Laurent and others, have shown that in muscle-reading with many subjects a condition is produced, a narrowing of consciousness, so that the probability of automatic activities, so that in muscle-reading tests upon many and normal reagents one has a fair chance to note the behavior of the automatic.

In the experiments to be described, the writer by means of the wrist of the reagent found an article which was previously hidden and upon which, usually, he called his attention. The first automatic activity to be considered in connection is what may be called a recapitulation of the path he had taken in hiding the article. For instance, in a semi-public test, as the young girl who acted as guide is diffident, in placing the chosen article across the room with her. On entering the room the guide moves first of all to the side of this woman, and the reader swiftly to the object. Carefully kept in mind the behavior of the reagent, first in hiding, then in involuntarily following to the chosen article, show that frequently, instead of following directly to the object upon which his thoughts are concentrated, he retraces the path he had taken in hiding the article, a retracing which involved a circuitous route and often reproduced hesitations. The involuntary and probably automatic nature of such recapitulations is evident partly from their occurrence, partly from their absurdity, partly from the guide's irresponsibility towards them, not to mention his disclaiming such incidents as may involve rehearsal of very insignificant details. For example, instead of approaching, directly and from the front, the desk, between the books of which a small object was hidden, comes up to it from behind and passes her hand

over the books from the back, thus copying the original act. Often the digressions of the guide—evident at first only as the transgressions of the muscle-reader!—become significant when a comparison is made of the records kept by a third person, which indicate precisely the course followed in the hiding and finding of a given article. Recapitulation occurs, as one might expect from the heightened emotional conditions, more frequently in public than in private performances, and in the earlier rather than the later tests on a given subject.

Recapitulation, it should be observed, is wholly unlike the situation resulting from conscious though involuntary oscillation of attention, that is, from failure in concentration of attention to which the guide confesses; for the indications in the first case are rapid, precise, and accurate, while in the second the fluttering of attention, its allurements by every object the eye falls upon, is evident from the rambling and inconclusive initiative of the guide. Moreover, retracing of the pathway—but not rambling—occurs frequently with reagents whose powers of concentration are excellent, just those reagents, in fact, with whom the most brilliant and rapid successes are possible and who belong, as Laurent's investigations show, among those subjects who under the conditions of the test become obsessed by the given suggestion.

The writer's attention was called to such recapitulation of the original act by spectators of muscle-reading tests. Subsequently, she found in the literature of the subject casual references to the retracing of the pathway. It should, of course, be evident that if in any way the guide becomes conscious of a tendency to retrace his path, or is aware that a record of such a nature is being kept, the fact ceases to have much significance, no more probably than the general significance of the involuntary indication of the direction of attention.

The interpretation of recapitulation remains in question. Does it represent what may be called a subattentive memory of the original act or a coconscious memory of it, or, rather, a physiological unwinding of the previous act—whatever that may mean? In any case, it has not become automatic through frequent repetition. It is no routine act; neither is it a novel one. That it is no isolated happening may be seen from the fact that records kept for fifty-three different subjects show such recapitulation, apart from induced occurrences, in the case of 22.6 per cent.

It may be added, as an interesting variant of the situation, that in order that a retracing of the pathway occur, it is not always necessary for the guide actually to walk over it. He may, for instance, mentally hesitate whether to place an article on a radiator or

on a table several feet to the right of the radiator, table and place the object there; and in locating reader may first go to the radiator and from that point. In such a case recourse is had to the reagent's desire. The *unsolicited* speculations of a thought, however, instructive; for while he may accept the notion of his (the reader's) success on the basis of the indications of the direction of his own (the guide's) action to see how a similar explanation can be used to the reader's apparent knowledge of the past course of action which during the test he was unconscious.

To multiply such occurrences, the writer found it to ask a spectator to suggest to the guide a change in the article had once been located. Thus, the guide laid an object on the floor under a table is induced to position to a shelf, nevertheless, in the test with the leading to the shelf, the subject pulls the reader to the table for a sweeping exploration of the floor. apt to laugh at the floor-sweeping as a gratuitous performance of the reader's. Sometimes the condition duce a double focalization of attention, of which the conscious. One subject, for example, refused in a second the suggested change on the ground that it caused her thoughts." In this connection the record may peculiarly interesting case of recapitulation. "M the south table, carried it north, and laid it back table, refusing to take P's suggestion that the box top of the cabinet. On touching M's hand, D (the directly to the chosen object, took it up, and carried table from which M had taken it; then went north a northeast table, to and around the cabinet, exploring latter; then walked again to the south table, picked the object. Time, three and a half minutes. M the object had been found the first time she ceased to look at it, and, instead, became interested in watching moves." A rather curious instance of recapitulating. The guide had been instructed, instead of herself, to watch its location by a third person. D of the reader, she sat, therefore, by a window and person hide the article, a rather leisurely procedure on contact with the guide, withdrew to the same window some time with the curtain before walking quickly to object. The guide throughout, it should be recalled, by instruction upon the article that had been

Other variants of the situation occur. In several instances experiments were recorded as failures, and rather gleefully accepted as such by combative guides, when the report showed that, while they had succeeded in veiling the conscious direction of attention, they had unconsciously returned, perhaps, to the person from whom they had taken the article, or to the locality in which originally the object had been placed, or had led to an article which had been rejected. In one test the guide had been given a rose, which the reader was to present to a certain lady; to the guide's chagrin, and this time against her will, the reader insisted upon giving the rose to the person from whom it had originally been taken rather than to the designated recipient. What accounts for such a break between the conscious and the automatic activities? Is there a subattentive consciousness at war with the attentive? With certain guides, indeed, success depends upon withdrawing their attention from the object to be located.

Other automatic occurrences may be mentioned. One of these may be described as the early indication of the level at which an article is hidden. The guide and reader enter, perhaps, the first room of a suite, in the last of which an object is to be found, and on entering this room, at a point many feet distant from the object, the reader's arm takes a vertical position. The object has been placed overhead.

An interesting experience occurred with a subject highly automatic, with whom the writer achieved many of her most brilliant successes. In this test record was being made of the time taken to traverse a chalked pathway, nine feet in length, in a room some sixteen by twenty feet. The reader, carefully blindfolded, with no knowledge of the pathway which had been chalked in her absence, had been led to the beginning of the pathway at commencement of the test. During its progress, however, the large sweeping movements of the guide drew her some distance from the chalked line, and failure seemed imminent, when the reader suddenly returned very precisely to the beginning of the pathway, which, as the guide exclaimed, reporting the course followed, "seemed such a sensible thing for the reader to do!" Not only sensible, but highly ingenious as well, the reader being blindfolded! This guide's unconsciousness of her initiative is, apparently, complete. During the course of the experiments she one day left her purse containing her door key upon an apparatus case in the laboratory. The next day she returned for the key, the loss of which had inconvenienced her. Curiously enough, in the tests a few days later she made frequent exploration of the apparatus case before guiding to the article of the specific test. In such cases as the above the automatic or sub-

conscious seems to be approaching our idea of intuiting "sensibly," to quote the guide again.

Unconscious initiative occurs also with subjects. The writer, as reader, has often been amused to see careful following of delicate variations, when at the point of discovering the object, skeptical subjects suddenly withdraw from the dangerous locality without though disclaiming such initiative.

A third series of observations remain. These test motor expression of a baffled or puzzled consciousness: the conscious and automatic factors interplay in a conflict. The experiment involved blindfolding the guide, placed his article as well as blindfolding the operator in the pathway or the removal of the object, in the reader and guide, by a third person. The difficulty must be wholly unanticipated by the subject. Confusion occurred accidentally from the loss of or falling of an article from its place. The outcome was instructive. Several reagents at the moment of coming the first time aware of a motor impulse. One young man, initiative throughout was great, and who had been entering a ledge for an abducted article, remarked on being questioned, that when the article failed to materialize he had been obliged to resist an impulse to follow along the ledge. Other reagents showed their perplexity. Often with bewilderment the movements became extensive, and there was frequently a wild floundering, of which later the guide disclaimed knowledge. The reagent was often otherwise preoccupied, as, for example, out of the visual image of the object—an annihilated reagent reported to be an extremely distressing experience.

In muscle-reading in general the automatic indications given is of great interest. The guide, though of his initiative; he fails to receive any motor report of variations. The indications given vary from slight variations of which the guide may well be unconscious, to such variations that the reader finds difficulty in believing it unconscious. Repeated and varied tests on many subjects have shown the writer are so. The best cure for the skeptical is to serve himself as subject in such a test. The writer's experience as guide has proved enlightening in this respect.

Automatism on the part of the operator as well as the reagent may be great. The agent may be unaware of his show little confidence in results, follow impulses

initiated. In the writer's case what she calls the head impulse, in which movement starts from the head and bears no apparent relation to the sensations in the hand by way of which contact is made, is of such nature. So deceptive, in fact, may be the feeling of induced or self initiative that introspection must here be corrected by the results of the tests which indicate, often with great precision, the directing agent.

Particularly interesting from the standpoint of automatism are the tests in which the subject is unconscious not only of his motor initiative, but also of any form of sensory anticipation, when, for instance, with his attention on one object, he involuntarily leads to an object previously thought of, but rejected as object of the test.

It has been said that success with certain subjects is possible only when the attention of those subjects is turned from the object to be located. To effect such distraction, counting aloud or reading aloud was resorted to. Sometimes distraction merely lengthened the time required to find the article. With other subjects it shortened the time. Changed conditions in muscular tension were very noticeable. In the case of one subject, with whom success had been slowly and deliberately achieved under conditions of concentration in which the muscles had been tense, under distraction, with relaxation of the muscles, rapid initiative on the part of the guide caused a rapid location of the article. In this particular case, the reader knocked the article—a pen—from its ledge to the floor just at the critical moment. With the pen in sight the subject's attention became riveted upon it, her muscles stiffened, and counting became slow and laborious. It is the reader's record of variations in tension and relaxation which parallels the guide's report that makes both of value as evidence. In general, the big sweeping automatic movements are very different from the delicate variations in muscular tension that accompany a labored concentration.

Success with obstinate subjects under conditions of distracted attention is of high value from the standpoint of automatism, as well as morally efficacious in the conversion of the skeptical. The writer herself—an exceedingly refractory subject—will never forget her amazement when for the first time in a series of tests success ensued upon complete distraction of attention. It was under the conditions of a similar test that she first became acquainted with the feeling of operating in two sections, as it were. The feeling was more than disagreeable; it resulted in faintness and long-lasting fatigue. It gave the writer, however, a more respectful and substantial notion of the possible meaning of a coconsciousness.

As was said at the beginning, these simple facts of automatism are presented with no predilection for any particular interpretation

of them. They show, however, that automatism w amount of elaboration may be the lot of a greater num has usually been supposed.

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DISCUSSION

CUSTOM AND THE MORAL JUDGME

WHEN Professor Lovejoy's appreciative review graph on the "Influence of Custom on the Mor appeared in the issue of this JOURNAL for Septembe seemed to me that his doubts as to the complete validi elusions needed only to be met by a series of quotat monograph itself and from a recently published and ea paper of mine. For this I did not feel justified in aski to give me the requisite space. Further reflection has however, that I may not have made my real position, be stated in a single word, and perhaps not even the my evidence, entirely clear. I have accordingly ventu the editors to allow me to restate in this place so muc ment as seems to have been misunderstood or ignored together with the conclusions which it appears to me t

The outcome of my study is not that custom has whatever in the group of persons examined. What it is, I believe, rather the following: It shows that custc very much smaller influence than is almost uniforml enables us to determine to some extent where this infl likely to exhibit itself; and, finally, it supplies us with notions of the nature of the influence. The last it does two of the three conceivable theories of the subject. T one is, so far as I can see, in essence identical with tha Lovejoy himself. I have stated it and made some sug its *modus operandi* on page 13 of my monograph. I important rival—"the foreign pressure theory"—is v being a myth, as the reviewer seems to suppose. It in Simmel's "Einleitung in die Moralwissenschaft," 54 ff.—though not unmixed with the view that men capable of producing the content of the right. Ever the only statement of this position, which it is not, it of fundamental significance for this department of apart from Simmel's acknowledged ability, he is one of

writers on the subject who have taken any trouble to make clear the nature of the process whereby custom is supposed to generate the moral code and to offer any real evidence for the conclusions asserted.

The argument against the rejected alternatives is as follows: The influence of custom (while not zero) is far too slight to warrant us in attributing to it the far-reaching effects which it must produce according to the two rival theories. The actual influence of custom must, therefore, be described in terms of the third theory, which, in the abstract, is compatible with any amount of it, small or great. Where does this influence appear? Mainly, it would seem, in two cases: (1) Where the situation is a complex one, or seems such to the individual judging; for example, where the effects in terms of happiness are not easily calculable, as in divorce and polygamy; (2) where a man finds himself attracted at the same time towards two incompatible ideals, as (in some persons) when called to pass upon the permissibility of revenge. These are explicitly recognized on page 55. In addition, custom may unquestionably "deadens the sensibilities and lull the critical faculty to sleep" (*Ecce Homo*). But its most typical effect in such cases is to lead to the absence of judgment, as at many points in our treatment of animals (*cf.* the monograph, p. 119). There is, indeed, a deeper view. The ideas that form the content of our moral ideals, like all other ideas, come to the individual, for the most part, from society. The consequences of this fact are stamped upon every page of the history of morality. But this does not affect the contention of the present study, which is that given a certain system of ideas of possible modes of conduct, the individual's judgments are the outcome fundamentally of his native emotional endowment, formed and guided by his own reason.

Does it follow from the above that every time the average representative of common sense passes a moral judgment he estimates the effects of the conduct in terms of the happiness of those whom he supposes to have a claim upon the agent? By no means. As I have tried to show elsewhere, some judgments are determined by the demand for suffering for its own sake (revenge), others take their character, at least in large part, from direct admiration for will power, others, finally, from a direct revulsion against weakness of will or certain forms of sense indulgence. A leading example of this last is disgust for many sexual relations, notably incest. But even where these last three standards are not concerned and where (in my view) authority is not making itself felt, the individual need not always have the eudemonistic consequences before his mind. In the well-worn routine of every-day life the affirmation, This is wrong, like the affirmation, This is unwise, may sometimes—perhaps

often—be the mere echo of a past judgment; the yes or no emerges, the reasons fail to appear (v. p. 15). The only problem of great theoretical importance is, how was this first judgment formed? This can be determined only by examining conscience when it is dealing with relatively new situations. It is to these initial judgments alone that the preceding description is intended necessarily to apply.

I have left myself little space for the consideration of the direct criticisms urged against the validity of my results, in so far as these criticisms are based upon other grounds than (as I think) a misunderstanding of my position. I must, therefore, confine myself to the fundamental issues. The first criticism concerns what I may call the purity of my material.¹ The attempt to find a member of a social organism who had not been exposed to social influences would involve a contradiction in terms. The debate upon the extent and depth of those influences which we are here discussing will, accordingly, go on to eternity unless good fortune throws into our way some factor whose effects can with some degree of accuracy be measured. Such a factor was discovered in the influence of the Bible upon those who profess to regard it as an authoritative guide in matters of conduct. The results of my examination (results as astonishing to me as they could be to any one else) are set forth at length in Chapter III. and the latter part of Chapter IV. They are that, subject to the provisos of the second paragraph above, the influence in question is a negligible quantity. I submit that unless this testimony can be discredited directly it must stand in the face of all mere guesswork with regard to the potency or impotence of university studies, sermons, or political propaganda.

With regard to the influence that may have been exerted by me in the interviews from which I obtained the majority, but, *nota bene*, by no means all of my material from the agricultural students, I shall only say that the following statement of the reviewer seems to me to give an inaccurate view of the procedure employed. He writes (p. 552): "The reasons were secured only through oral interviews and cross-questioning, in which the interlocutor pointed out inconsistencies in the answers of the students, suggested reasons which *might* have underlain the answers, and the like" (italics as in original). The pointing out of inconsistencies consisted solely in asking—always in the same formulation—What is the difference between the question you answered in this way and the question you answered in that way? In addition, I asked them for the reason for their answer where it was not volunteered. Whatever I may have asked or said or suggested beyond this has nothing to do

¹ 1 and 2 of page 551 of this JOURNAL.

with the essentials of the evidence on which I rest my case in forty-two out of the fifty interviews. In order to safeguard my conclusions in the remaining instances I not merely used certain checks during the interviews themselves, but also got my assistant, Mr. Otto, during another investigation with agricultural students in 1908, to make a deliberate and determined effort to bully them into an agreement with his presumptive views. In every instance, as appears from pp. 105 ff., he was unsuccessful.

Finally—for I have attempted to deal with the objection numbered 5 in the first part of this discussion—there remains the doubt whether the replies received were typical of the class as a whole. I must here content myself with calling attention to a single fact. In 1907–8 Mr. Otto obtained precisely the same results with another group of “short course students” where the fact of random selection is beyond cavil (pp. 112 ff.). The reviewer may have considered himself justified in ignoring the detailed evidence thus brought to light, significant as it is as an independent corroboration of the trustworthiness of my data, on the ground that a young assistant can always be depended upon to get results in harmony with those of his principal. If, however, going behind the returns in this fashion is justifiable, I may be permitted to say that in the first place my assistant is not a boy, and in the second that he entered upon this investigation as firmly convinced as any critic will be that my conclusions were all wrong. He became converted during the progress of the investigation. I am, therefore, unable to see any justification for treating his very explicit report as untrustworthy.

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REVIEWS AND ABSTRACTS OF LITERATURE

Talks on Religion. A Collective Inquiry. Recorded by HENRY BEDINGER MITCHELL. London, etc.: Longmans, Green & Co. 1908. Pp. xii + 325.

Le besoin et le devoir religieux. MAURICE SEROL. Paris: Gabriel Beauchesne & Co. 1908. Pp. 216.

Fifteen unnamed men, nearly all of them said to be distinguished in some department of learning, hold a series of conversations on the nature and grounds of religion. The company includes a mathematician, a historian, several philosophers, two representatives of biology, an anthropologist, a social philosopher, a clergyman, an editor, and an author. In “Talks on Religion” the substance of their conversations is reported by one of their number. The whole constitutes a set of rambling reflections, and sometimes mild debate, on the logical status of religion in the light

produces our ideals within us reveals itself precisely in these ideals. Then come similarly discordant views of organized religion. "The Historian" paints a dismal picture of the history of Christianity; "The Editor" offsets it with a eulogy of the mystical factor in this history, calling it the "church invisible." "The Clergyman" attributes the improvement of life to Christianity, but "The Historian" traces it to democracy and science. Similarly, a declaration that organization or the church is essential to religion is opposed by evidence that the church represses individual religion. One speaker argues for unification of the churches, another prefers variety of types.

In all this nothing is concluded; there is scarcely a trend toward a conclusion. What is offered us is not philosophy, or science, or theology, but chiefly a collection of symptoms. They, at least, are instructive. For, after allowing for what is merely personal or temperamental, one can here feel a movement of the common mind of the group. For example, religious beliefs and institutions are discussed with a degree of objectivity that is rare. Undoubtedly this instance of self-detachment reflects the general growth of scientific method. But it is likewise a religious phenomenon. One can hardly resist an impression that the impulse that brought the group together is more religious than scientific, at least if we are willing to call religious the seeking of a proper attitude toward life as a whole after one has gazed with open eyes at its values, its mysteries, and its defects.

There is here, apparently, an at least nascent consciousness that we need the objects of religion, and that religion is possibly a necessary as well as possible human attitude. "The Social Philosopher" craves more than he dares to believe, and he admits that probably he has "a vague faith that things are better than they appear on the surface to be." "The Historian" imagines himself to be rather barren of religious feeling; nevertheless, though he despairs of the church, he responds to the ideal of a simple personal religion that issues in peace and love. But, more certainly than any spoken word in the discussion, the tone of the whole reveals the speakers as not only facing great facts and great theoretical problems, but also great human interests. Possibly, after all, we shall some day learn that the deepest practical question is not whether we shall be religious, but what kind of religion we shall have.

"Religion," says "The Pragmatist," "is to me an adventure of faith." But the only implicate of this proposition that he draws out concerns the relation of organization to religion. Why did he not show what sort of need it is that calls for the adventure of faith; whether this need is universally human, and what sort of adventure it logically leads to? The adventure to which he refers appears to be "choosing to believe in a power for good." But this, even if it is a possible and reasonable act, is surely not the whole of the adventure. "The Philosopher" likewise seeks his definition of religion in the experience and the search for values as contrasted with the mechanism of nature, but he contents himself with a merely general concept of the relation of religion to reality and to values.

There is need that the philosophy of religion show from the standpoint of the functions that religion performs in normal life. What need does it express, and how met, if at all? As the title of Dr. Serol's book promises this task. Whatever one may think of the success of he deserves credit for discerning the importance of this is so unlike that of most scholastics. His plan is simple, good and evil are determined by agreement or disagreement, he classifies what he calls the chief natural impulses of man. He next shows that natural hindrances prevent from reaching their goal, and that the resulting strain is naturalistic methods (stoicism, pessimism, evolutionism), with its promise of supernatural help and light, a religious solution is, therefore, a need of our nature, and a religious function becomes a duty. This duty includes the specifically doctrinal belief. It also involves the need of authority. For not only is the light of nature an insufficient guide to the strong and decisive action that life demands, but it also includes that of a rational order to which life may conform, in which all things shall share. Such an order can not be found in the sensible world, yet we need to be certain of it. It is the duty of reason to seek a guide and to accept the one that offers itself, the manifestations of supernatural power, and also historical traditions, which we stand in need of.

It is evident that Dr. Serol has perceived, though he does not see the possibility of a Christian apologetic based upon the needs of Christian life. It is hardly possible that the power of religion derived from anything less fundamental than human nature. Catholicism desires an understanding and adjustment to the modern world, let it show what are these, its deepest needs. The significance of Dr. Serol's book lies in the fact that it attempts to do this. He comes short of his goal, to be sure. For, maintaining his original standpoint of need-and-supply, he is bound to the old-fashioned supernaturalism, with its assertion that there is a right of way irrespective of the needs of the modern psychology of impulse and of belief, too, needs some other logic that derives from the need of something a new actuality may be questioned. He has not quite freed himself from the prescientific apologetic that slays enemies by naming (*e. g.*, "biological agnosticism"). He is not a modernist. But, for all that, the book should receive more attention in Catholic circles than it is likely to attract. It contains some remedies for its own most serious shortcomings.

The Will to Doubt. An Essay in Philosophy for the General Thinker.

ALFRED H. LLOYD. London: Swan, Sonnenschein and Co., Limited. 1907. Pp. x + 285.

This work is a study of the place and function of doubt in human experience. Professor Lloyd conceives experience, and reality itself, in dynamic terms as organic and spiritual and as evolving through a continuous process of self-differentiation, to which process doubt, error, and contradiction are integral. He finds that all genuine doubt involves belief and all vital belief contains an element of doubt. After a general sketch of the doubting attitude, he examines the difficulties that inhere, first, in the ordinary view of things, and second, in the scientific view of things. Under the former heading he points out the contradictions that are involved in the notion of causation, the relation of individual to society, etc. Then, turning to positive science, he finds that it would be objective, but can not; for its vaunted objectivity of method becomes mere formal technique and the fixity of its so-called "objective" concepts becomes untrue to the plastic and progressive nature of the real. Science would be specialistic, a thing of caste, but it can not maintain this exclusiveness; for all law must be one, and the same fundamental principles must be present in all science as true. Science would be agnostic as to the ultimate real, but it can not consistently maintain this attitude; since the unknown, as present in the known, is the nerve of scientific progress. Dogmatic agnosticism is untenable, but an instrumental agnosticism is essential to scientific progress. Professor Lloyd protests against the complete separation of the scientific and volitional points of view, such as one finds in Professor Münsterberg's epistemology.

Appraising the significance of these defects and conflicts in experience and science, Professor Lloyd maintains that contradiction or negation is an essential and never-to-be-eliminated moment in reality. Reality is a vital and growing unity of differences, and, to a world of living and real differences, conflict or opposition is essential. By contradiction he means "difference or contrast, at its limit." In the life of reality every idea has a counter-idea, every individual is such only in relation to others. Reality is a unity of related differences, and relativity belongs to the real. Professor Lloyd gives further illustrations of his view by reference to the relation between the personal and the factional or instrumental in human society. After an interesting account of Descartes as representative doubter, he sums up his conclusions in two chapters: "The Doubter's World," and "Doubt and Belief." There is reality, without finality, in all things. Parallelism is not the ultimate truth in regard to the relation of mind and body, but it points beyond naïve dualism, by its refutation of an external causal relation between mind and body. The relationship of spiritual and material is too intimate to be expressed in terms of external causation. Nature as machine is evolving and productive, an instrument of something other than her mechanical self. There is genuine individuality in all things, and, under the lead of industrialism, individuality is being more fully realized in

human society. Human life is naturally immortal, both psychically, in so far as the individual is in relation to life and no being is real out of relation. Hence, immortality is the ongoing life of humanity, which constitutes a unity without external distinctions of past, present, and future and in which the individual is immortal only through participation in this life of spiritual progress, sceptic, loyalist, or conservative. Doubt implies one another just as doubt involves belief. For things that we most deeply doubt and our doubt brings with deeper insight. Professor Lloyd makes interesting his thesis to the idea of God and to Christianity.

The whole book is interesting, and I confess to a sympathy with the doctrines expressed therein. I would not find a moment of contradiction and of the continued life of humanity good. On the other hand, I seriously doubt whether this is so illuminating to the general thinker not already trained. Professor Lloyd's style is sometimes too compact, and direct and vaguely allusive. I have found the book burdensome to read, and, in such matters as the contradictions of Cartesianism, of mind and body, etc., the treatment is altogether scrappy to be satisfactory. One can guess the author's preparation; one comes to the reading with a mind furnished with a paratus; otherwise, I fear, the work will prove hard sledding. That Professor Lloyd did not give himself more rest as a "general thinker" out of the play. If he had I think the aforesaid general thinker would have been the gainer. *Fachmann.*

JOSEPH

HOBART COLLEGE.

Neurological and Mental Diagnosis. L. PIERCE CLARKE and J. H. DIEFENDORF. New York: The Macmillan Co. 1908.

The appearance of a text of this character in English is a reason to have been unnecessarily delayed. The section on diagnosis is, of course, not vastly different from chapters on the same subject in works on general clinical methods, or in the current work on neurology. This portion of the subject is treated in a fairly concise fashion, and covers sixty pages. In the order of the examination considerable latitude must naturally be left; the author hints at this, and merely wishes to point out what should be thoroughly gone into. It would perhaps have been especially, if the various tests for determining the state of the various functions had been placed together, for the reason that in a case where it is necessary to use them, are more apt to be associated in the student's mind. More emphasis might be laid on the extreme value of securing a specimen of handwriting; it is often of very considerable assistance

clinician knows. Other tests for determining the character of the patient's tremors would also be of assistance, such as having him copy lines drawn free-hand by the examiner.

The electrical examination is quite complete. The more usual form of testing the sensory side of the reflex arc by inquiring into tactile, pain, localization position, temperature and stereognostic senses is not followed. In concluding the review of this section, it would seem that the method of recording a sample case and utilizing material from several cases of a dissimilar condition to emphasize a given point is of doubtful value. Negative results are as important, often, as positive. State the facts and leave it at that.

The section on the method of determining the mental status includes, together with an outline of mental examination, examples of some of the more frequently encountered types of mental disease, such as dementia præcox, manic-depressive psychosis, dementia paralytica, amentia, acute alcoholic hallucinosis, etc.; and also a glossary, for which the student and the general practitioner are likely to be truly thankful.

In determining whether or not a patient has a spinal leucocytosis, the method here described is much more unwieldy than that described by Cornell in the *American Journal of Insanity*, July, 1907. The method suggested by the author was originally described by Alzheimer, and later by Cotton and Ayer. It takes longer and can not be done as a simple clinical laboratory procedure, either by the student or the general practitioner, as can the method described by Cornell. Since the book is said to be primarily for practitioners and students, it is well to bear this fact in mind. The plasma cells in the illustration of cerebro-spinal fluid are very hazy and would not give any one an adequate idea of their appearance. The use of the phrase "emotional irritability" for "emotional instability" to indicate changeable mood (p. 90), and the words anergy for aboulia (p. 94), desultoriness for irrelevancy in train of thought (p. 82), and circumstantiality for circumlocution (p. 82), all tend to add unnecessarily to an already overburdened phraseology. The author suggests the use of the word "confusion" to describe a lesion in thought production, *e. g.*, "confusion with flight of ideas" or "desultory confusion"; it is very likely that the general medical man will suffer from more than desultory confusion in endeavoring to ascertain the exact psychiatric value of the word "confusion," because unfortunately it has none.

The work of Lewis Bruce on the blood in dementia præcox, and that of several Italian workers, and Folin in America, on the urine receive but scant notice, and the very interesting eosinophile content in katatonic dementia præcox is not mentioned in discussing the blood changes. The varying results which bacteriological work has yielded cause the writer of this section to conclude that as a routine it is not to be recommended for diagnosis. One would feel that bacteriologic investigation in psychiatry would be of as much value as in any other branch of general medicine. Ascending paresis is used when speaking of taboparesis, and scanning speech as often present in paresis; this is not in

strict conformity with present-day neurologic teaching ning speech is regarded as one of the classical trias multiple sclerosis. A mannerism is defined as a fo movement. A mannerism may be a stereotyped mov necessarily one; a pure mannerism may not be stereoty J.

TORONTO HOSPITAL FOR INSANE.

The Esthetic Experiences: Its Nature and Function.

WILLIAM DAVIS FURRY. The Johns Hopkins Stud and Psychology. No. I. Pp. xv + 155.

Thought always involves two aspects: namely, con The intellectualist philosophers, Dr. Furry contends, sive emphasis on the aspect of content, the voluntarist control. What one must find is "some mode of ex the two aspects of thought, content and control, with attach to them, are brought together in some larger termination of such a mode of experience represents t problem *par excellence*." The rational and the volitions in their nature and require to be absorbed in some fulle shall have an immediate character. The esthetic is s "The essential character of this type of experience treatment of meanings already present for the sake o as fulfilling personal purposes. By this method of already present as having a further meaning, using as schemata for more complete meanings, conscious otherwise incomplete and fragmentary character of it

The parallel between the "semblant" or play cons esthetic is stated at length. The "semblant" conscious of memory and fancy; it recognizes in memory the and in fancy the aspect of freedom and of adaptation. It is immediate, since play is performed for its own an identification of the player with his object, which l were" real. In the esthetic experience there is objecti merging of the subject in the object, a widening and self—in short, all those virtues which are expected o for which the epistemological consciousness is strivin

The second part of the essay is an historical résu attempt is made to trace the development of thought the rise and development alike of the epistemological together with the use made of the esthetic conscious of world unification and interpretation." Dr. Furry motives of the esthetic consciousness are to be sougl rather than in sociology. Prior to Thales it was the sciousness which was the organ of world unification. product was a thing which lay between sense-percepti ideas. Aristotle found in art the meeting point of v

ticular, of form and matter. Neo-Platonists apprehended beauty in a state of ecstasy which transcended all merely rational differences. In modern thought the problem is stated in terms of the sensuous and the rational, and the attempted solutions have led repeatedly to the adoption of esthetic experience as the reconciliation of the claims of the two. This is notably the case with Kant, Hegel and Schopenhauer. The conclusion is that "the epistemological and the esthetic have arisen together, and that the latter has functioned always as the organ of world unification and completion, thus satisfying the demands of the twofold aspect of all thought."

KATE GORDON.

WINNEBAGO, WIS.

JOURNALS AND NEW BOOKS

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. May 29, 1908, Bd. 47, Heft 4. *Abteilung für Psychologie. Untersuchungen über die Temperatursinne (Schluss)* (pp. 241-286): SYDNEY ALRUTZ. - The heat sensation is introspectively unanalyzable into warmth and cold, but may resemble one more than the other. It is a simple sensation, resulting from the simultaneous excitation of warm and cold end-organs. The scale of perceptible differences is more finely graded for cold than for warm, the latter manifesting only three certain degrees. Sensations of warmth (1) inform us of slight temperature changes, (2) give color to paradoxical cold sensations, enabling the distinction between them and the effects of greater or less decrease in temperature, (3) in conjunction with cold and pain, help us to distinguish between burning hot and biting cold. The stimulation of cold nerves, resulting in heat sensations, aids the organism in its reactions to the temperatures of food. Warmth never becomes so intense as to be uncomfortable, as do cold, heat, and pain. The clinical tests of Goldscheider, Weber, Fechner, Nothnagel, Eulenberg, Leegaard and Thunberg are criticized and a modified form of Leegaard's method suggested. Goldscheider's topographical chart of warmth intensities is revised, intensity differences being found to be less than Goldscheider states and no intense sensations occurring so long as one remains below the stimulus limen for heat. *Zur Frage der Referenzflächen* (pp. 287-290): ALOYS MÜLLER. - Continuation of the author's discussion with Sterneck. The theory of the *Referenzfläche* (1) is useless, (2) is a mathematical rather than a psychological concept, (3) is not justified by experimental results, (4) is but a pedantic expression of the fact that objects seem smaller the farther they are from us. *Bemerkungen zu Herrn Professor W. Wirth's "Erwiderung"* (*diese Zeitschrift*, 46, S. 429) (pp. 291-292): K. MARBE. - Remarks on the agreement between the views of Wundt and his assistant, Professor Wirth. *Literaturbericht: Michael Cohn, Kalk, Phosphor und Stickstoff im Kindergehirn: UMPFENBACH. A. Adler, Studie über Minderwertigkeit von Organen: ALFRED GUTTMANN. H.*

Fitting, *Die Reizleitungsvorgänge bei den Pflanzen; Irtümlicher Reize in parallelotropen Pflanzenteilen*: FREY. *Die stroboskopischen Täuschungen und das Problem der Bewegungen*: E. DÜRR. E. Lombard, *Essai d'une théorie des phénomènes de glossolalie*: JUNG. L. Klieneberger, *Die bei Schülern und Studenten vorkommenden spezifischen Ursachen der Unlust- und Lustgefühle*: BERNARD LEROY, *Escroquerie et hypnose*: JUNG. A. L. A. nouveau cycle somnambulique de Mlle. Smith: JUNG. Quelques mots sur la définition de l'hystérie: JUNG. *Die der Sehnenphänomene ohne nachweisbare Erkrankung*: UMPFENBACH. Th. Flournoy, *Automatisme du suicide*: JUNG. E. Wulffen, *Ibsens Nora vor dem Psychiater; Kriminalpsychologie und Psychopathologie der Räuber*: ALFRED GUTTMANN. M. Hirschfeld, *Jahres Zwischenstufen unter besonderer Berücksichtigung der Monatsberichte des wissensch.-human. Komitees; Zeitschrift der Wissenschaft*: ALFRED GUTTMANN. O. Rank, *Der Mensch*: GUTTMANN. S. Meyer, *Gedächtnis und Vererbung*: JUNG. W. Fuchs, *Zur Persönlichkeitsanalyse*: JUNG. C. L. *Les idées familiales*: JUNG. H. Schmidkunz, *Einleitung zur Pädagogik*: KREIBIG. Max Wentscher, *Ethik*: ALFRED BIRCH-REICHENWALD AARS, *Gut und Böse*: A. KOWALSKY.

ANNALEN DER NATURPHILOSOPHIE. July

Heft 3. *Das Leben und die zweite Energiesatz* (pp. 1-228): DRIESCH. - Entelechy is not potential or other energy, but temporarily to suspend events. *Das Problem der Genese* (pp. 229-277): H. DRIESCH. - To describe historic movements of evolution is preferable to evolution, which has ethical and practical applications. *Soziologie und Geschichtswissenschaft* (pp. 278-296): GOLDSCHEID. - History is the science of the actual, so possible in human society. History furnishes the material while the latter gives the historian orientation in the material. *Evolution und Energie* (pp. 251-256): O. NAGEL. - as the production of "noble" energies, with greater difference-thresholds. *Versuch einer energetischen Genese* (pp. 257-277): O. NAGEL. - The development of "noble" feeling, in which the modern world surpasses that of antiquity. *Charakter und Naturforschung* (pp. 278-296): R. HELLER. - that pride and intensity of disposition have played in the history of science. *Zur Dynamik bewegter Systeme* (pp. 297-306): M. PLANCK. - bined application of the principles of relativity and of quantum problems. *Weitere Bemerkungen zur modernen Mathematik* (pp. 307-316): J. BAUMANN. - Comments on points raised by Russell, and others. *Absolute und relative Bewegung* (pp. 317-326): WERNICK. - The elimination of the concept of absolute

from physical consideration. The dependent problem of the definition of a straight line reduced to the identification of an example or existent standard of a straight line. *Neue Bücher* (pp. 342-352): W. O.-H. Höffding, *Lehrbuch der Geschichte der neueren Philosophie*. V. Franz, *Die Welt des Lebens*. R. Avenarius, *Kritik der reinen Erfahrung*. R. Sommer, *Familienforschung und Vererbungslehre*. O. Werner, *Lebenszweck und Weltzweck*. R. Mayrhofer, *Psychologie des Kluges*. A. Meinong, *Über die Stellung der Gegenstandstheorie im System der Wissenschaften*. J. Schultz, *Die drei Welten der Erkenntnistheorie*. A. S. Grater, *Die neue Weltbild*. A. Rey, *La théorie de la physique chez les physiciens contemporaines*. M. Munden, *Der Chtonoblast*. K. Österreich, *Kant und die Metaphysik*.

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Cohn, Johnas. *Voraussetzungen und Ziele des Erkennens: Untersuchungen über die Grundfragen der Logik*. Leipzig: Wilhelm Engelmann. 1908. Pp. viii + 526. 10 M.

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Ioteyko, I., and Stefanowska, M. *Psycho-physiologie de la douleur*. Paris: Felix Alcan. 1908. Pp. 245. 5 fr.

Koch, Hans Ludwig. *Materie und Organismus bei Leibniz*. Halle: Max Niemeyer. 1908. Pp. viii + 59.

Milliet, J. Paul. *La dynamis et les trois ames. Essai de psychologie néo-Aristotelicienne*. Paris: E. Sansot & Co. 1908. Pp. 383.

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Rey, Abel. *La philosophie moderne*. Paris: Ernest Flammarion. 1908. Pp. 369. 3.50 fr.

Thöres, Adelheid. *Die philosophischen Lehren in Leibnises Theodicee*. Halle: Max Niemeyer. 1908. Pp. 79.

Woodworth, Robert Sessions. *Psychology: A Lecture delivered at Columbia University, March 11, 1908*. New York: The Columbia University Press. Pp. 29.

Ziehen, Th. *Die Prinzipien und Methoden der Intelligenzprüfung*. Berlin: S. Karger. 1908. Pp. 61.

NOTES AND NEWS

The Proceedings of the Aristotelian Society, New (London, Williams & Norgate), contains the following the society during its twenty-ninth session, 1907-1908 of Modern Logic and the Conception of Infinity," "Purpose," R. Latta; "Professor James's 'Pragmatism,'" "The Religious Sentiment: An Inductive Inquiry," A. Idea of Totality," Shadworth H. Hodgson; "Impressions Problem of Idealism," H. Wildon Carr; "On the Cor logical Levels," T. Percy Nunn; "The Relation of Science from the Point of View of Psychological Development," "The Nature of Mental Activity," a symposium by S. Ward, Carveth Read, and G. F. Stout.

THE *Kurzer Gesamthericht* of the philosophical congress at Heidelberg, which contains abstracts of most of the papers read at the congress, gives a valuable and convenient outline of contemporary thought on philosophical matters. No group of problems seems to be occupying the attention of philosophers. Historical papers and papers on topics in logic are numerous, and the list of abstracts gives the impression that philosophy is becoming emancipated from the Kantian

PROFESSOR WILLIAM JAMES will repeat at Harvard a series of eight lectures which he delivered last spring. The course is entitled "The Present Situation of Philosophy," and the lectures will be given in Emerson Hall. Professor James defends the conception of a "pluralistic universe."

PROFESSOR R. H. CHITTENDEN, director of the Sheffield Laboratory at Yale University, has been appointed to give the university's Darwin celebration to be held at the University of Chicago in June.

A STATUE of Francis Bacon is to be erected, in front of the Square of Gray's Inn, after the tercentenary celebration of his appointment as the Inn's treasurer.

DR. EDWARD CAIRD, late Master of Balliol College, Oxford, died on November 1, at his Oxford residence. He was born in Glasgow, March 20, 1835.

COLUMBIA University will be represented at the international congress on the monument to Lamarck, in Paris, on November 19, by Professor Ford Dean.

DR. J. W. HUDSON, assistant professor at Harvard University, has been appointed professor of philosophy at the University of Illinois.

THE American Psychological Association will hold its annual meeting in Baltimore, on December 29, 30, and 31.

THE Anthropological Congress will be held in 1910, in Dublin.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

EDWARD CAIRD

THE *Oxford University Gazette* of November 3 records the death of Edward Caird in the words: "Died at 12 Bardwell Road, on the evening of Sunday, November 1, Edward Caird, M.A., Hon.D.C.L., Fellow of the British Academy, Corresponding member of the Institute of France, Honorary Fellow and late Master of Balliol College, Honorary Fellow and formerly Fellow of Merton College, formerly Professor of Moral Philosophy in the University of Glasgow. Aged 73."

Edward Caird was born at Greenock on March 20, 1835. He was the sixth of seven brothers, the eldest of whom was John Caird, afterwards principal of the University of Glasgow. Edward received his first education at the Grammar School in Greenock, entering Glasgow University in the later fifties of the last century. From Glasgow he passed to Balliol College, Oxford, in 1859, where in 1861 he won the Pusey and Ellerton scholarship. He took a first class in Classical Moderations and in Greats, and on the completion of his course in 1863 he was elected to a fellowship in Merton, working as tutor for three years. During these years he was a member of the "Old Mortality" Club, which included in its membership John Nichol, Thomas Hill Green, James Bryce, Albert Dicey, Algernon Swinburne, and George Rankin Luke. In 1866 he was appointed professor of moral philosophy in Glasgow. In this position Caird remained until 1893. In November of 1893 he was called to be Jowett's successor as Master of Balliol.

As a student at Oxford Caird had been strongly influenced by Green and Jowett. Green had studied Hegel seriously, indeed with sufficient earnestness to be able to declare later (which in philosophy is a high tribute) of the system of Hegel, "It will all have to be done over again," and Jowett was speaking of Hegel as "the great modern master of metaphysics." In his introduction to the "Sophist" he declared that Hegel, "if not the greatest philosopher, is certainly the greatest critic of philosophy who ever lived." Caird, however, while less original than either Jowett or Green, was able

through a unique power of assimilation to introduce it to English readers. Writing of the permanent influence of Hegel, he says: "Like earlier philosophies, like every other philosophy, the Hegelian philosophy has to die though it may break away from the accidents of its first immediate influence, and may become an element in the growing life of a new philosophy. The important question now is, not whether we are still in the days of discipleship are past—but whether there is still the existence of a living development of philosophy, of that spiritual or idealistic view of things in which Hegel culminates—a development which begins in the days of Kant's speculation, and in which Kant and Hegel are, not the first names, but the last names in the highest order of *i maestri di color che sanno*."

The more important of Caird's writings are his articles "Cartesianism" and "Metaphysics" in the *Encyclopædia Britannica* (ninth edition); "Philosophy of Kant," 1878, wherein Kant's work is treated as preparatory to Hegel; "The Social Philosophy and Religion of Kant," 1889; "Essays in Kantian Philosophy," 1892; "The Evolution of Religion in the Greek Philosophy," 1897; "Sermons delivered in Balliol College" (dedicated to James Davidson, Master of Balliol), 1907.

In the preface contributed to "Essays in Philosophy"—a volume edited by Andrew Seth and Richard Green—dedicated to the memory of Green—Caird says that "a certain community of opinion in relation to the *aim and method of philosophy*. . . . Such an agreement is not without great and even vital differences. For any idea that claims to be the basis of growth in it, any idea that takes hold of many minds, is certain, as it develops, to produce many sides, is certain, as it develops, to produce many antagonisms and even to call forth much antagonism and even to call forth many supporters. A doctrine that passes unchanged for ever is by that very fact shown to have exhausted its life. It is by those ideas have been the most fruitful both in philosophy and in life, which, accepted as a common starting-point, have led to the most far-reaching controversy. Nevertheless, in the midst of controversy it remains possible to appeal to one principle. The differences are due to the various developments of thinking in different minds, the division and opposition of interests in life, and may be expected ultimately to be overcome by the spiritual energy which has produced it." The philosophy of Caird's own *philosophic method* as

tribute to Green, his friend and teacher. One gets an impression of Caird the man and the philosopher in his biographical introduction to Wallace's "Lectures and Essays on Natural Theology and Ethics," and in his introduction to Principal Caird's "Fundamental Ideas of Christianity." To understand Kant (and Kant may be taken as a type) is "to detect a consistent stream of tendency which, through all obstructions, is steadily moving in one direction; to discern the unity of one mind which, through all changes of form and expression, is growing towards a more complete consciousness of itself." The opening chapter of the work on Kant, "The Idea of Criticism," seems to focus the main principles of Caird's own philosophic method and manner. The "Social Philosophy and Religion of Comte" might form a good introduction to the problems of philosophy. Philosophy, it is declared, "*professes to seek and find the principle of unity which underlies all the manifold particular truths of the separate sciences, and in reference to which they can be brought together and organized as a system of knowledge.*" The religious significance of philosophy was ever present to Caird's mind. "A man's religion," as he declares in "The Evolution of Theology in the Greek Philosophers," "if it is genuine, contains the summed-up and concentrated meaning of his whole life; and, indeed, it can have no value except in so far as it does so." Perhaps Caird's most original work is done in the "Evolution of Religion." Here he had in view "that large and increasing class who have become, partially at least, alienated from the ordinary dogmatic system of belief." The task is once more that of criticism: "to separate what is permanent from what is transitory in the traditions of the past" is a difficult task, but is one "which every new generation has to encounter for itself." "In dealing with such difficulties, in the present day, we are greatly assisted by those better methods of historical and philosophical criticism which are making the book of the past so much less hard to read than it was to a previous generation; and, above all, by the *great reconciling principle of development, upon which these methods are based.*" "The idea of development thus enables us to maintain a critical spirit without agnosticism, and a reasonable faith without dogmatism; for it teaches us to distinguish the one spiritual principle which is continuously working in man's life from the changing forms through which it passes in the course of its history."

Throughout Caird's writings there is an air of high seriousness, a deep sympathy with all the normal manifestations of the human spirit. One feels instinctively that his philosophy was his own life lifted to consciousness—a union of idealism and mysticism. In the world-wide circle of those who have felt his influence, though they

part, whereas his volitions have the character of effort and self-assertion which puts them in a wholly different class from the passively received impressions. To be sure, the technical psychologist begins to realize as soon as he discusses the nature of impressions that these are not received passively, but the type of activity upon which they depend must be recognized even in technical discussions as different from that involved in volition.

Again, the common man sometimes recognizes through comparisons of his experience with the experiences of his fellow beings that pleasure and disgust have a different nature from impressions or from voluntary choices. This discrimination of feeling as distinct from the cognitive and volitional process is not by any means as easy as the discrimination of volition from cognition. Some writers have consequently been satisfied to adopt even for technical purposes the earlier twofold classification of Aristotle, who distinguished only active and cognitive aspects of consciousness. The common man certainly would have difficulty in defining clearly the difference between feelings and the other aspects of his conscious life. We have a large number of words which show that feelings and other aspects of mental life are frequently confused. When one speaks of the "devotion" of a man to a certain cause, it is very difficult to decide whether a volitional or affective phase of consciousness is under discussion. Again, we speak of an observer as "intent" upon some object or as "absorbed," and show thereby the intimacy of the relation between cognitive and affective processes.

Although somewhat vague in so far as it treats of feelings, the threefold classification may be accepted as a fairly usable descriptive classification. The distinction which thus grew up in ordinary thought could not be neglected by the technical psychologist, and it is little wonder that generations of psychologists have emphasized these distinctions and accepted them as fundamental to the whole science, especially at a period when the science was primarily descriptive.

The more these distinctions were used, however, the more difficult it became to give them any definite scientific justification. One after another of the distinguished aspects of consciousness was merged by individual workers in psychology into some other group, and was thereafter treated as secondary in nature and importance. Some writers tell us that sensations as the simplest cognitive phases of consciousness are the only truly elementary forms of consciousness. A feeling must be reduced to sensation elements before it can be treated scientifically. The individual may, to be sure, have a mental state which he naturally distinguishes from the sensation elements of which it is composed, but for the scientific explanation

same sense. Cognitions and feelings and volitions were treated much as the analytical chemist treats the different elements. The chemical elements each have qualities peculiar to themselves, but they nevertheless belong to the same general level of existence, and they all exhibit certain characteristics common to the whole group. Mental processes have been treated by the analytical students of consciousness in much the same way as the chemist treats his compounds. A much better example to have followed would have been the example of physics. That science treats constantly of the relation between two fundamental types of reality, namely, matter and force. These two entities in the physical world are not recognized as belonging to the same general type of existence; matter and force do not have characteristics in common. They are constantly in relation and are constantly present at the same point in space; but they do not in any way conflict or merge into each other. To be sure there has been some effort on the part of certain theorists to include both matter and force in a superior category of some sort or other, but for the empirical scientist matter and force exist as two totally different and yet constantly interrelated types of reality.

This analogy seems to me to open the way for a treatment of the elements of mental life which retains what of value lay at the foundation of the threefold classification. That classification clearly marked off certain phases of mental life as having a peculiarly subjective character as distinguished from other phases which were especially objective in their relations. Volitions were purely subjective, while cognitions were derived from the external world. Cognitions, at least in their sensory elements, may very properly be described as given, while volitions are the self-assertions of the individual. When in any concrete mental situation that which is given and the individual's reaction upon it are united, there can be no conflict, for the subjective and objective aspects fit together as do matter and force. There are here two interrelated and yet wholly distinct aspects of mental reality.

This suggestion for the treatment of the distinction between volition and cognition encounters somewhat greater difficulties when we turn to feelings. And yet, if feelings are to be distinguished at all from cognitions, it must be on the ground that feeling is a more personal and subjective aspect of consciousness than is cognition. When one experiences a color and is pleased, the color is a "given" element, while the pleasure is the reaction of the individual upon what is given.

In all these statements it is not said that sense impressions and cognitive processes are not subjective. They are, of course, mental

processes rather than physical, but they are objective reference whereas the feelings, and especially the feelings, are conditioned from within.

If one objects to all these statements regarding the character of feelings, I suppose that he would voice the following: Feeling very often arises in experience with the same regularity as the sensory impressions. I hear an harmonic chord, and, hearing it, I have pleasure from it. Is the chord obviously subjective as distinguished from the notes?

I believe the answer to such an objection is that we need not go into any labored discussions of conditions which are not open to introspection. Let the observer note the feeling process if the chord is struck several times in succession; the feeling will invariably show much greater fluctuations in intensity and quality than will the sensory impressions, the latter being in relation to variable and internal conditions. In this way we find accordingly a sufficient answer to the objection raised. It is not, certainly there would be no lack of legitimate grounds for recognizing the greater subjectivity of feelings in the comparisons which grow out of the comparisons of individual experiences with individual experience. We all live by the average of the cognitions of all the members of the community and their feelings different. This is a perfectly legitimate basis on which to base a discussion of psychology. To distinguish feelings and sensations as did the earlier psychologists it leads us also to go very much farther than the earlier psychologists to recognize these two classes of processes as differing in quality, but also in character and origin. Further, by emphasizing the contrast between subjective and objective consciousness, we escape the temptation to speak of conditions. We contrast the subjective aspects directly with the objective elements of the complex cognitive process.

The moment we recognize the subjectivity of feelings in relation to a whole group of processes which were previously recognized as subjective, but were not included in the classification of mental processes. Thus attention is a process and very closely related to feeling. I know that this is an argument against the earlier classification than the place for such facts as attention. One reads the statements of the analytical or structural psychologists to do with attention, and sees them flounder about because they do not know where they may classify it. It is everything and nothing in particular. For my part I must say that I see no

to beginning entirely anew in the matter of classifications. If feelings and attention belong together, why not put them together and define their common characteristics as we discover them? Furthermore, if feeling and attention are not wholly alike though both subjective, why not subdivide the general category "subjective phases of consciousness" into as many subclasses as necessary? Clearly the advantageous move in view of present difficulties is to revise our fundamental classification.

Finally, one of the great advantages derived from the complete revision of our scheme of classification is that a new impetus is given to explanatory science. If one recognizes that sense impression is one type of fact and feeling another, he is instantly impelled to seek new and adequate explanatory formulas. And in seeking these he will find additional cogent reasons for the new classification itself. It is in the productivity of the distinction between the objectivity of sensations and the subjectivity of feelings that I find one of the strongest justifications for the abandonment of the old threefold classification and the adoption of some other scheme.

The older explanations of the nature of feelings emphasized such matters as the dependence of feeling on organic sensations. The motives which led to the explanation of feelings as related to organic sensation were the same as those which led to the classification of feeling as elements similar to sensation. Indeed, we may say that feelings were regarded by all of the earlier writers as requiring, because of their coordination with sensations, an explanation of the same type as that which was used for the other elements of consciousness. Where there was any doubt as to the availability of the organic sensations for this explanation, certain vague organic agencies such as the rise or fall of general nervous vitality were resorted to. These changes in the degree of general vitality affect the nervous system, as it was assumed, very much as external energy affects the organs of sense. The feelings were accordingly a kind of internal sensory process, and the formula was accepted as analogous to that adopted for sensations.

There is undoubtedly some truth in the positions above described. The organic sensations and the general degree of vitality constitute the nervous background for consciousness, and especially for all of the general subjective states. But there is very little evidence that the feelings are any more related to these general changes than are other conscious processes dependent on central nervous organization, such as the selective cognitive processes. As special explanations of pleasure and displeasure organic sensations and general vitality were failures and never received any general acceptance.

On the other hand, one of the most important innovations in recent psychology was the suggestion by James and Lange that the conditions for the feeling must be sought in some direction totally different from that of the sensations. That it was not easy to adopt this new formula appears in the fact that James, in his first statement of his theory of feelings, clearly held to the familiar formula of sensory processes. The feelings were for him return currents of experience coming from the peripheral organs of behavior. They constituted a kind of muscle sensation. Other writers have explicitly used this formula of muscle sensation, and the whole movement for a time belonged to exactly the same general type as the earlier explanation which vaguely identified feelings and organic sensation. Gradually, however, the formula of behavior proved its value and its independence of the ordinary formulas applied to sensation. The movement processes were recognized as having value for the explanation of feelings quite apart from the sensory currents which arrive after the movement has been completed. With the development of the James-Lange theory the movement processes have come to be treated as direct conditions of consciousness. The motor processes here referred to are no longer at the periphery where they are likely to be mixed with return sensory currents; they are rather the motor processes in the central organs. Furthermore, the formula has been indefinitely extended so as to include many processes of mental life other than feelings. Indeed, we may say that the distinction between sensations as objective in character and origin and the other phases of consciousness as subjective was first clearly established on an explanatory basis by the adoption of a true motor formula for the explanation of all the subjective processes including the feelings.

Once before in the history of psychology the step which has thus been taken was very close at hand. The explanations of certain cognitive processes which were offered by Wundt under the name of innervation processes promised to give a new formula that should differ radically from the formula of sensations. It was held that as a nervous impulse leaves the central nervous system it acts so as to arouse a state of consciousness which is radically different from that which results from external stimulation of the organs of sense. Hardly had this statement been ventured, and the innervation processes recognized as unique conditions for certain forms of consciousness, when the possible advantages of the theory were lost by calling the conscious processes innervation sensations. If some one had only held to the formula in its strict sense, and asserted that the outgoing motor processes are indeed related to consciousness, but not in such a way as to arouse new sensations, he might have an-

ticipated the whole productive movement which has come into psychology in the train of the James-Lange theory of the feelings.

One fact which undoubtedly led both the early theorists and those who advocated the innervation theory to confuse sensations with the fundamentally different conscious processes which depend on reaction, is that the conscious processes related to reactions are very often, so far as introspection goes, simple and direct in character. A feeling does not usually show to the superficial observer any evidences of its origin in a complex of motor discharges. It seems to be quite as unanalyzable as a sensory quality. But the same is true of such facts of experience as appear in the perception of single objects and in ideas; for the introspective observer a percept or an idea is as unitary as any sensation. We have, however, long since come to recognize that there may be apparent simplicity on the introspective side of a percept or an idea related to a high degree of complexity. So also with the feelings; an experience of pleasure has behind it a whole system of conditions.

Bringing together the conclusions that have been reached up to this point, we may regard it as clear that the feelings are more subjective than sensations and are closely related to complex subjective organizations or reactions of the individual upon his sensations. When we look into consciousness by way of introspection, the feelings and sensations may seem to be altogether coordinate. They seem to be coordinate just because they are both apparently simple. They are, however, wholly different types of process and depend on wholly different conditions. We are, therefore, justified in classifying sensations on the one side and subjective reactions, among which we include feelings, on the other.

The subdivision of the general group of processes described as subjective reactions is based on a variety of considerations which it is unnecessary to discuss here, where our chief interest is the establishment of the fundamental division between objective sensations and subjective reactions. One general remark, however, will be appropriate in support of the adoption of a special term other than "subjective reactions" for some of the commoner subjective phases of experience. The long phrase "subjective reactions" would be entirely justified on the grounds which have already been discussed. Such a phrase is, however, unnecessarily cumbersome, and since we have a single word which conveys the same meaning, that word may very properly be employed as a technical term, epitomizing the whole position above presented. The single term suggested is the term "attitude." In order to mark the sensation aspects of consciousness as distinct from the attitudes which are subjective, sensations may very properly be designated as contents. The "attitudes"

of the individual may be various in quality and intensity, but will all be clearly recognized under this term as *of the individual* rather than in objective conditions.

The analogy of the physical treatment of matter can be used once more even at the risk of overworking it. The elements of psychology are to be compared to matter, whereas the attitudes or subjective reactions are to be compared to force. That is, they designate processes which are active in character.

It has been charged that such a view as this gives too large measure to the effort to assign feelings a distinct psychological theory. The feelings are here grouped with other phases of mental life that they lose their proper place. This charge I am quite prepared to accept as wholly unfounded. Feelings are, indeed, no longer to be treated when attitudes are elementary phases of consciousness. They are to be treated as belonging in a class distinct from other phases such as attention and interest. That this grouping of feelings with other attitudes is a loss to clear thinking is no more to follow from the fact that feelings are no longer artificially separated into a class. I feel no dogmatic devotion to the word "attitude," but I find in the considerations here presented ample ground for unqualified devotion to a category larger than feelings is needed in order to find the true place of processes which have ordinarily passed under the name.

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SOME THOUGHTS ON THE CONCEPT

IT is impossible in the space of this article to discuss the concept in detail or depth, either what the "concept" is, or how it can be brought to a clear realization of this most elusive of psychological problems. There can only be offered a few ideas and convictions, gained by introspection and reflection, and a brief sketch of a somewhat careful endeavor, for the purpose of teaching to students something as definite as possible, and as true, regarding the concept.

There is surely no set way nor patent method for teaching the concept. One's methods here, as everywhere else, are largely upon one's philosophical and psychological assumptions, whether one is teaching the concept from the formal point or the more modern genetic, psychological standpoint.

writer must confess that his experience in trying to teach true and real ideas regarding what concepts are—how they arise—and what their use and function is, so that the student can not only tell in words what he has learned, but also will have a feeling, a warmth of appreciation, a real understanding of what the words mean, is not wholly satisfactory.

If a young student be thrown unprepared into the many psychologies of recent date, from James and Ladd to Thorndike and Calkins, he will surely be hopelessly confused and bewildered, and will become, for a time at least, as skeptical regarding the concept as most of us are regarding the Platonic ideas: yet, on the other hand, if a student is held exclusively to the old, formal, supposedly simple, logical statement of concept forming, he will only get a memorized list of meaningless words, he will get no idea of the concept as largely a functioning; he will be but poorly nourished on these verbal husks of scholasticism. The truth about the concept is as hard to state, in words, as that about any psychological idea that can be mentioned. James used to say that if any psychological definition claimed absolute correctness and definiteness, we could be sure that it was not true. This surely applies to our definition of the concept.

What is a concept? It is like asking what is consciousness, and is just about as easy to answer simply and clearly. We all have conceptual experiences, but to disentangle and label and describe them is difficult. We may define concept as a class notion, a general idea, an idea of the qualities of a class, or, as Sully does, as the representation in our minds answering to a general term, etc., but all these definitions, upon careful definition and repeated introspection of our own mental processes, prove incomplete and misleading unless qualified; yet the endeavor to set forth, in words, to the young student the real meaning of concept is sure to result in confusion to him on account of the complexity, vagueness, and indefiniteness of the definition. A concept is more than merely a class notion, or a class idea, or a general idea; it involves complicated functionings, many unnoticed motor tendencies, and, especially, it involves and must have a name. Max Müller has rightly emphasized the importance of the term or name in the concept. It is the feature that raises the human generalizations from receipts to concepts. We may tentatively define a concept as a general or class notion-named. This suffices for ordinary expression, so long as we are not called upon to state clearly what is meant by general or class notion, and when and where it may be found. The same objection can be raised against this definition as can be made against Sully's classical definition, mentioned above, namely, that it implies that the concept is always

a set, fixed, limited, and constantly reproducible idea. An objection can be made to Sully's definition that it is not always—always a general notion—a concept; no allowance for the variety and differences of the ideas of different individuals. This definition is certainly contrary to the teachings of late psychologists as James, Calkins, and Ribot.

The older and more formal ideas of the concept seem, formulated by men who were either pronounced or pronounced audiles, and who entirely overlooked the sensory foundations. The realists and conceptionalists of sensation were evidently, pronounced visualizers; they thought it possible to answer to a general term, a fixed general and concrete image. On the other hand, the nominalists must have been of the auditory type—and hence they asserted that the concept did not exist, and that the common term was the all in all. If true, the common term would truly be a *vocis flatu*. The fact that the common term could be used even, and that it could deny general ideas, be successively and correctly applied to similar objects, after some experience, proves that there is something found in mind answering to the common term. This shows, at least a real mental background which furnishes the basis of discrimination and adaptation. These older ideas, stated above, must entirely have overlooked the functional side and tendencies of the concept. Reared in speculation on speculation and philosophy, instead of speculation on action, they overlooked the motile mind, for whom the concept has motor meaning, suggestions of certain attitudes, accommodations in the presence of certain objects, and certain words.

Concepts, then, are not confined to any one class of objects. Careful introspection of self, and observation and comparison of others, will convince us that there are as many different classes of objects as there are people. The same common term when read, or heard, or thought, arouses in different minds very different reactions and ideas, depending on the mental type, age, and experience. Therefore we cannot say what one has in mind answering to a general word is a general notion of the highest form, or even a general concept. This fact Ribot certainly showed in his experiments on the concept which he set forth in his valuable book, "The Evolution of General Ideas." These results are suggestive. The general concept is always, in a real sense, a new and a momentary concept. The mental terms most characteristic to the individual.

shows, always new and different. The common term is merely the label, the occasion, the nucleus, for the exercising of a certain mental habit of construction, attitude, or action.

The problem of teaching regarding the concept is, then, how to make students realize the above facts. We must appeal constantly to their own experience if our instruction is to be real and valuable. It is best to begin in a very simple way, perhaps first trying to give the students an idea of what ideas and images are—and of the necessity of general terms and general ideas for thought and life and communication. Hold up a book, try to show them that they now have a mental image, a complex of present sensations plus reproduced past sensations, explain that the present image is a percept, an idea of an object present to consciousness. Have them touch the book, lift it, hear it drop, and then state that all these experiences are mental images contributing to the percept. (Of course, we must qualify that their idea of the book is not a naïve sense impression, they having passed such possibility.) Then hide the book and ask them to image it in all possible ways; and then explain that now they have memory ideas, or, taken together as an idea of book, they have a psychical, particular notion, a revived percept. Now try to broaden their conception of idea as being any mental state which re-presents or rep-represents anything.

The next point is to show them that now they have the power of constructing a mental image of a book free from the presence of the object, they have an embryonic general notion. The fading, the blurring, the constant reconstructing of this idea in the presence of other books make it attach to itself, as Calkins says, a feeling of generality. Thus, in the very heart of the concrete and particular the general is born.

Next, have them study the formal logical steps of concept forming, presentation, comparison, abstraction, generalization, and denomination, explaining them as clearly as possible, but with the qualification that this is an ideal, logical, and purely formal statement of the conceptual process, and not in this set form psychologically true or consciously noticed in ordinary experience. Then, with these standard terms in mind, return to the book image. Present other books, saying that in life our first idea corresponding to the term "dog" or "book" is our first dog or book, but that others appear in later experience successively. Then show by blackboard diagrams and symbols how the mind, because of its attention being called to repeated like qualities, gradually abstracts or retains ideas of these like qualities and neglects the unlike, so that common terms become able to call up to mind certain common class qualities. Emphasize the simplicity and universality of abstraction, and show how it goes

hand in hand with generalization, and that in life denomination, as a rule, precedes the other steps. Sum up with the simple and practical definition of the concept, and try some few experiments along the lines of Ribot.

With the more advanced students we should spend more time than with the elementary, discussing particular and general relations, and also, in addition, endeavor to give as clear a statement as possible of the evolution of general ideas in the individual; presupposing a rudimentary knowledge of the formal steps. The endeavor here is to show the different ideas that we may construct at the different stages of life, or at different stages in our experiences, of the objects of any class. The recognition of these stages is pedagogically very important for the successful teaching of any line. We should first discuss here sensations and sense impressions, and then the possibility, as the next step, of the psychical percept, *i. e.*, an ordinary percept without any conscious analysis and synthesis. Then discuss the psychical individual notion, a recalling or a reconstructing of the above, with a slight changing, blurring, and feeling of generality as experience progresses. The next stage may be called the generic idea. After a good deal of experience the idea answering to any common term becomes vague and lacking in particular imagery, and we are only able to construct or have an indefinite feeling or image. Further experiences with new concretes render even the generic idea of a class impossible, and in all but good visualizers it is hard to discover it at any time.

We now advance to the stage of intermediate abstraction. The general notion is no longer an image, but a list more or less correct of the common qualities of the class; these qualities symbolized by words in the individual's typical memory form. These constructions we may call psychical concepts.

So far the processes described are natural and involuntary ones. The scientist goes farther. He really and deliberately and consciously goes through the formal steps. He analyzes his percepts and synthesizes the results, forming logical percepts; he deliberately abstracts the fundamental and type qualities, with full knowledge of rational relational requirements. He expresses his results in the concise, definite form of a definition. He now has a statement of a logical concept. Very few men ever form such a concept, or even know such a one. We find it stated in dictionaries or scientific books, and there it generally remains. To learn these words without the previous background of experience is useless. We must show the student that if the formal idea of concept is the only true one, these logical concepts are the only true concepts, and that these to be psychological experiences of value must always be reconstructed

out of each person's mental background, every time anew, if they are to be more than memorized empty words. We should try, then, especially to make the student see that the word concept has wide and various meanings. That a common term is only the occasion of a reconstruction every time it is used. That this always takes time and varies from time to time even with each person. That really concepts are only possibilities, not entities or fixed ideas.

Such teaching has its dangers. It may for a while confuse and dishearten the student. He becomes skeptical, some cock-sure, patent, pedagogical maxims are unsettled. The course of learning becomes devious and thorny. He can not tell in a word or so what general notions or concepts are. Nevertheless, he will have a more real feeling of the conceptual process, he will get the psychological and introspective attitude, he will realize that people differ, and that glibly repeated learned definitions are merely empty sounds. He will realize that the child's construction answering to a general term differs from his own and is of a lower form, and he will realize the necessity for a wide background of concrete experience and knowledge and growth before the higher abstract concepts, definitions, and rules can be understood by the child and felt by him to be realities.

He can also be brought to see that every general notion has a motor side—that it is not a purely abstract ideal, but has functional value; it means power and possibility of adaptation to environment and life. Indeed, he will see that the only reason for ever seeking the abstract and the general and the logical is that we may conquer, manage, take a rational attitude towards the real, the concrete, and the particular.

After all, as James says, it is the real, the concrete, and the particular that we are most interested in, and over which we must have power. The gaining of this power is the end and aim of education, and the general and the abstract are useful just in so far as they suggest and assure habitually rational action and adaptation.

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REVIEWS AND ABSTRACTS OF LITERATURE

Le pragmatisme et ses diverses formes anglo-américaines. MARCEL HÉBERT. Paris: Librairie critique Emile Nourry. 1908. Pp. 105.

Professor Marcel Hébert is a singularly erudite and liberal thinker (a seceder, I believe, from the Catholic priesthood) and an uncommonly direct and clear writer. His book "*Le divin*" is one of the ablest reviews of the general subject of religious philosophy which recent years

have produced; and in the small volume the title of which he has, perhaps, taken more pains not to do injustice to any of its numerous critics. Yet the usual fatal misapprehensions vitiate his exposition and his critique. His promise to form a worthy hook, as it were, on which to hang to tell the reader what the pragmatist account of truth

M. Hébert takes it to mean what most people take it to mean, namely, that whatever proves subjectively expedient of our thinking is "true" in the absolute and unrestricted word, whether it corresponds to any objective state of affairs or not. Assuming this to be the pragmatist doctrine, he opposes it at length. Thought that proves itself to be true may, indeed, have every other kind of value for the individual, but cognitive value, representative value, *valeur de confirmation dite*, it has not; and when it does have a high degree of utility value, this is in every case derived from its proving a way of correctly representing independent objects of important influence on our lives. Only by thus representing things do we reap the useful fruits. But the fruits follow on, they do not constitute it; and M. Hébert accuses pragmatism of everything about truth except what it essentially is. Indeed, that the world is so framed that when men have their desires, consequential utilities ensue in abundance; and, as critics, I think, has shown as concrete a sense of the actual utilities as he has; but he reiterates that, whereas secondary, we insist on treating them as primary, and as *naissance objective* from which they draw all their being. Which we neglect, exclude, and destroy. The utilitarianism strictly cognitive value of our ideas may perfectly well be said to say—and in the main he allows that they do harmonize with reality—not logically identical for that. He even admits that such desires, impulses have the active "primacy" in our cognition; cognition awakens only at their spur, and follows them. Yet, when it is awakened, it is objective cognition proper, and has another name for the impulsive tendencies themselves: satisfaction. The owner of a picture ascribed to Corot whose authenticity is doubted. He looks up its origin and finds it is by Corot. But his uneasiness does not make the proposition false, as the relief makes the proposition true, that the actual Corot picture is by Corot. Pragmatism, which, according to M. Hébert, claims that the *make* truth and falsehood, would oblige us to conclude that it exerts no genuinely cognitive function whatever.

This subjectivist interpretation of our position seems to me to have happened to write (without supposing it necessary) that I was treating of cognition solely on its subjective side. In the long run the true is the expedient in the way of our life, as much as the good is the expedient in the way of our being.

previously written that truth means "agreement with reality," and insisted that the chief part of the expediency of any one opinion is its agreement with the rest of acknowledged truth, I apprehended no exclusively subjectivistic reading of my meaning. My mind was so filled with the notion of objective *reference* that I never dreamed that my hearers would let go of it; and the very last accusation I expected was that in speaking of ideas and their satisfactions, I was denying realities outside. My only wonder now is that critics should have found so silly a personage as I must have seemed in their eyes, worthy of explicit refutation.

The object, for me, is just as much one part of reality as the idea is another part. The truth of the idea is one relation of it to the reality, just as its date and its place are other relations. All three relations *consist* of intervening parts of the universe which can in every particular case be assigned and catalogued, and which differ in every instance of truth, just as they differ with every date and place.

The pragmatist thesis, as Dr. Schiller and I hold it—I prefer to let Professor Dewey speak for himself in these pages—is that the relation called "truth" is thus concretely *definable*. Ours is the only articulate attempt in the field to say positively what truth actually *consists of*. Our denouncers have literally nothing to oppose to it as an alternative. For them, when an idea is true, it *is* true, and there the matter terminates, the word "true" being indefinable. The relation of the true idea to its object, being, as they think, unique, it can be expressed in terms of nothing else, and needs only to be named for any one to recognize and understand it. Moreover it is invariable and universal, the same in every single instance of truth, however diverse the ideas, the realities, and the other relations between them may be.

Our pragmatist view, on the contrary, is that the truth-relation is a definitely experienceable relation, and therefore describable as well as namable; that it is not unique in kind, and neither invariable nor universal. The relation to its object that makes an idea true in any given instance, is, we say, embodied in intermediate details of reality which lead towards the object, which vary in every instance, and which in every instance can be concretely traced. The chain of workings which an opinion sets up is the opinion's truth, falsehood, or irrelevancy, as the case may be. Every idea that a man has works some consequences in him, in the shape either of bodily actions or of other ideas. Through these consequences the man's relations to surrounding realities are modified. He is carried nearer to some of them and farther from others, and gets now the feeling that the idea has worked satisfactorily, now that it has not. The idea has put him into touch with something that fulfills its intent, or it has not.

This something is the *man's object*, primarily. Since the only realities we can talk about are such *objects-believed-in*, the pragmatist, whenever he says "reality," means in the first instance what may count for the man himself as a reality, what he believes at the moment to be such. Sometimes the reality is a concrete sensible presence. The idea, for

example, may be that a certain door opens into a room. Beer may be bought. If opening the door leads to the taste of the beer, the man calls the idea true. Or his idea an abstract relation, say of that between the sides and that of a triangle, such a relation being, of course, a reality of a glass of beer is. If the thought of such a relation leads to auxiliary lines and to compare the figures they make, perceiving one equality after another, *see* the relation in vision quite as particular and direct as was the taste of beer. If he does so, he calls *that* idea, also, true. His idea has, in effect, brought him into closer touch with a reality felt at the moment of the idea. Each reality verifies and validates its own idea. In each case the verification consists in the satisfactory sequences, mental or physical, which the idea was able to bring about. "workings" differ in every single instance, they nevertheless, they consist of particulars, mental or sensible, of concrete description in every individual case. Pragmatism is to see what you can possibly *mean* by calling an idea true. You mean that between it as a *terminus a quo* in some particular reality as a *terminus ad quem*, such a reality may do or may intervene. Their direction constitutes the idea's truth, that reality, their satisfactoriness constitutes its adaptation to that reality, their satisfactoriness constitutes its adaptation to that reality, the two things together constitute the "truth" of the idea for the possessor. Without such intermediating portions of concrete experience the pragmatist sees no materials out of which the truth can be built up.

The anti-pragmatist view is that the workings are the truth's previous inherent presence in the idea, and that the very possibility of them out of existence and still the idea as solid as ever. But surely this is not the truth to ours. It is the renunciation of all artistic truth is but a claim to the right to *call* certain ideas true. This is what I meant above by saying that the anti-pragmatist has no real alternative, and that our account is literally the theory extant. What meaning, indeed, can an idea's truth be if it is not the power of adapting us either mentally or physically to a reality?

How comes it, then, that our critics so uniformly object to pragmatism, of denying the reality's existence? It comes from the necessary predominance of subjective language in our thought. However independent and objective realities may be, when we speak of them, in framing our accounts of truth, only as so many ideas in. But the process of experience leads men so continually to replace their older objects by newer ones, which they find it more difficult to believe in, that the notion of an absolute reality inevitably becomes, *Grenzbegriff*, equivalent to that of an object that shall be *sedes*, and belief in which shall be *endgültig*. Cognitively, it is under a sort of rule of three: as our private concepts refer to objects to which they lead us, these being public realities.

the individual, so these sense-realities may, in turn, represent realities of a hypersensible order, electrons, mind-stuff, God, or what not, existing independently of all human thinkers. The notion of such final realities, knowledge of which would be absolute truth, is an outgrowth of our cognitive experience from which neither pragmatists nor anti-pragmatists can escape. It forms an inevitable regulative postulate in everybody's thinking. The belief in it is the most abundantly verified and validated of all beliefs, the last to suffer doubt. The difference is that our critics use this belief as their sole paradigm, and treat any one who talks of human realities as if he thought the notion of reality "in itself" illegitimate. Meanwhile, reality-in-itself, so far as by them *talked of*, is only a human object; they postulate it just as we postulate it; and if we are subjectivists they are so no less. Realities in themselves can be there for any one, whether pragmatist or anti-pragmatist, only by being believed; they are believed only by their notions appearing true; and their notions appear true only because they work satisfactorily. Satisfactorily, moreover, for the particular thinker's purpose. There is no idea which is *the* true idea, of anything. Whose is *the* true idea of the absolute? Or to take M. Hébert's example, what is *the* true idea of a picture which you possess? It is the idea that most satisfactorily meets your present interest. The interest may be in the picture's place, its age, its "tone," its subject, its dimensions, its authorship, its price, its merit, or what not. If its authorship by Corot have been doubted, what will satisfy your proprietary interest will be to have it confirmed; but, if you have a normal human mind, merely calling it a Corot will not satisfy other demands of your mind at the same time. For them to be satisfied, what you learn of the picture must make smooth connection with what you know of the system of reality in which the actual Corot played his part. M. Hébert accuses us of holding that the proprietary satisfactions are all-sufficient to make the belief true, and that, so far as we are concerned, no actual Corot need ever have existed. Why we should be thus cut off from the more intellectual satisfactions, I know not; but whatever the satisfactions may be, intellectual or proprietary, they belong to the subjective side of the truth-relation. They found our beliefs; our beliefs are in realities; if no realities are there, the beliefs are false; but if realities are there, how they can ever be *known* without first being *believed*; or how *believed* except by our first having ideas of them that work satisfactorily, pragmatists find it impossible to imagine. They also find it impossible to imagine what makes the anti-pragmatists' dogmatic "ipse dixit" assurance of reality more credible than the pragmatists' conviction based on concrete verifications. M. Hébert will probably agree to this, when put in this way, so I do not see our inferiority to him in the matter of *connaissance proprement dite*.

Some readers will say that, although *I* may possibly believe in realities beyond our ideas, Dr. Schiller, at any rate, does not. This is a great misunderstanding, for Schiller's doctrine and mine are identical, only our expositions follow different directions. He starts from the

subjective pole of the chain, the individual with his beliefs, as the more concrete and immediately given phenomenon. "An individual claims his belief to be true," Schiller says, "but what does he mean by true? and how does he establish the claim?" With these questions we embark on a psychological inquiry. To be true, it appears, means, *for that individual*, to work satisfactorily for him; and the working and the satisfaction, since they vary from case to case, admit of no universal description. What works is true and represents a reality, for the individual for whom it works. If he is infallible, the reality is "really" there; if mistaken it is not there, or not there as he thinks it. We all *believe*, when our ideas work satisfactorily; but we don't yet know who of us is infallible. Schiller, remaining with the fallible individual, and treating only of reality-for-him, seems to many of his readers to ignore reality-in-itself altogether. But that is because he seeks only to tell us how truths are attained, not what the content of those truths, when attained, shall be. It may be that the truest of all beliefs shall be that in transsubjective realities. It certainly *seems* the truest, for no rival belief is as voluminously satisfactory, and it is probably Dr. Schiller's own belief; but he is not required, for his immediate purpose, to profess it. Still less is he obliged to assume it in advance as the basis of his discussion.

I, however, warned by the ways of critics, adopt different tactics. I start from the object-pole of the idea-reality chain and follow it in the opposite direction from Schiller's. Anticipating the results of the general truth-processes of mankind, I begin with the abstract notion of a reality. I postulate it, and ask on my own account, *I vouching for this reality*, what would make any one else's idea of it true for me as well as for him. But I find no different answer from that which Schiller gives. If the other man's idea leads him, not only to believe that the reality is there, but to use it as the reality's temporary substitute, by letting it evoke adaptive thoughts and acts similar to those which the reality itself would provoke, then it is true in the only intelligible sense, true through its particular consequences, and true for me as well as for the man. The moth who thinks of a flame as dangerous thinks of it more truly than the moth who only feels its beauty. The workings of such a moth's idea prove more satisfactory in the long run.

My account is more of a logical definition; Schiller's is more of a psychological description. Both treat an absolutely identical matter of experience, only they traverse it in opposite ways.

Possibly these explanations may satisfy M. Hébert, whose little book, apart from the false accusation of subjectivism, gives a fairly instructive account of the pragmatist epistemology.

WILLIAM JAMES.

HARVARD UNIVERSITY.

Kritik der Philosophie vom Standpunkt der intuitiven Erkenntnis.

EUGEN HEINRICH SCHMITT. Leipzig: Fritz Eckardt Verlag. 1908.

Pp. viii + 507.

The author of the present volume essays a new role in philosophical literature, that of a Balaam. Having given warning that he is to pronounce the most destructive curses upon philosophy and all its works, he examines its history in detail; and the result is a system of judgments and valuations which stamp with approval its most characteristic and classical achievements. The total effect of the volume, then, is quite different from that which would be indicated by its early pages.

The opening announcements are couched in terms like these: "The great masterpiece of the demon which denies in the history of the world bears the title 'history of philosophy.' In this an impossibility, as can be easily shown, is attempted upon the basis of a great misunderstanding. But precisely that attempt to bring to pass the impossible was the great condition under which the highest intellectual forces of man could become steeled and strengthened, in order thus alone to make possible in the future the great work of positive knowledge, research upon the basis of the reality of inner experience, the only reality positively given" (p. 2). The author has the task, then, not only of pointing out in principle the logical flaw in the conception which philosophy forms of its problem, and of demonstrating this flaw in detail by an examination of all the great systems, but also of explaining why the labor upon this problem could attract the greatest minds, and prove profitable for human culture.

The book is divided into two parts. The first or fundamental part discusses closely the main issues of the theory of knowledge, nearly all of which are relevant to the central topic. It presents the author's view of the origin of philosophy and its characteristic problem, the genuine grounds of our knowledge of nature, the basis of mathematics, the labyrinth of conceptual functions and the *Irrgarten* of philosophy, the shortcomings of Hartmann's transcendental idealism, the universal forms of consciousness as hypercosmic functions, and the methods of knowledge. The second or historical part, beginning with Thales, examines every notable system down to the present.

We soon find that in spite of the antiphilosophical ring of his remarks about positive knowledge, Dr. Schmitt is no positivist of the school of Comte. Indeed, positivism as he understands it is much more earnestly carried out by Hegel than by Comte (p. 454); for it rests upon a searching study of that which is positively evidenced by conscious experience, when we include the implications of that self-consciousness to which all experience is relative. Inner experience is to the author the only immediate and undeniable truth, and all truth whatever can gain positive standing only as it can be founded in inner experience. True, inner experience is not a purely subjective function, and the declaration of this doctrine does not commit him to subjective idealism; for inner experience transcends finite subjectivity, and bears within itself directly the consciousness of the universal, of the infinite, and of a realm of truth that is

transsubjective. It would be a fundamental and hopeless mistake, however, to suppose that this transsubjective realm is a realm of objects separate from the inner life of the conscious individual, and to suppose further that the problem of the knower is then that of copying or imitating with his subjective conscious states these assumed outer facts, in that case looked upon as more real and controlling. This is, of course, the mistake of realistic metaphysics; and it is the mistake which Dr. Schmitt charges against philosophy through all the ages. Sound thinking must recognize, however, he judges, that the reality of the object is defined for us through the leadership of certain systematizing elements in our consciousness, which he calls dimensional relations, or dimensional functions. Our apprehension of the bearing of these systematizing factors is an intuitive and immediate one, and it is upon the basis of this intuitive consciousness of truth, directly given in our inner life, that positive science is founded.

Now, the capital error of philosophy, Dr. Schmitt charges, consists in minimizing the significance of the inner life, by treating it as subjective, weak, and faint, and by setting it the task of imitating a truth supposed to be external to it, more real and more objective. Such an attitude is proper to natural science, which does not strive to be critical; but better things are expected of philosophy. Yet philosophy has never succeeded in divesting itself of this realistic attitude, however strong the idealistic teachings may have become.

It is evident that this charge is only partially true. Undoubtedly realistic elements have persisted powerfully in the history of philosophy. They have their degree of truth, which, when properly grounded, our author also would admit. But since Socrates and Plato, philosophy can not fairly be charged with ignoring the significance of the idealism of consciousness, or with treating ideals as the weak copies of physical facts. On the other hand, the progressive insight which philosophy has developed regarding the spiritual universal implied in knowledge, and its identity with the ground of being, is to most men the thing which determines the character and significance of philosophy.

In the historical portion, the author points out the realistic character of the thought of Thales, and says, "The confusion of the tendencies and aims of natural knowledge with this manner of investigating the most elementary foundations of life and being appears here in its historical establishment as typical and determining for philosophy even to our day" (p. 190). The sophists, however, were applauded for their discovery of the mental life, and Socrates for his emphasis upon the universal element in its nature. Platonism comes in for extensive commendation, and its most significant doctrines are discussed in detail, especially the reality of the concept and the idea of the good. The idealism of Plato is regarded, however, as not perfected, and therefore Plato exhibits the characteristic error of philosophy. Aristotle relapses into a more realistic attitude, even to asserting the truth of sense perception, and therefore draws a heavier fire than Plato; yet the concreteness of his system is regarded as all to the good, and his doctrines of teleology, of development, and of God as

Universal Reason, are commended and appropriated. In modern philosophy Kant's emphasis upon the activity of the mind in the construction of scientific experience is commended, but his restriction of genuine knowledge to the categories of mechanical science is opposed as another form of the old error of philosophy. The characteristic teachings of subsequent German idealism are expounded with keen and sympathetic insight, and with a large excess of commendation over criticism. Even German idealism, however, has not fully carried out the task of measuring truth in terms of the implications of the inner life, and in so far falls under the condemnation visited upon all philosophy.

Dr. Schmitt is contending for positions with which the present reviewer, for instance, is in substantial accord; yet why attempt to set forth idealism *at the expense* of philosophy, rather than as its essential teaching? Is it that the intellectual atmosphere in Germany renders this a wise tactical move? In any case, the author displays thorough and competent scholarship, with sound and reliable judgment. He exhibits these in combination, however, with a German style that is remarkable for its looseness and complexity.

E. L. HINMAN.

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Rudolf Eucken's Philosophy of Life. W. R. BOYCE GIBSON. Second edition. London: Adam and Charles Black. 1907. Pp. viii + 182.

This book serves English readers as a general introduction to the personality, writings, and philosophical system of Professor Rudolf Eucken, of Jena. The phrase "philosophy of life" gives rise to a possible misunderstanding; for it is intended to indicate, not the practical application of Eucken's philosophy, but the central place in his system of the *Geistesleben*, the spiritual life and its categories. The present edition differs from the first edition, published in 1906, in that it includes an appendix on "Activism," which provides for the emphasis given to the problem of "action" in Eucken's most recent publications, the "Grundlinien einer neuen Lebensanschauung" and the "Hauptprobleme der Religionsphilosophie der Gegenwart."

Professor Eucken's writings, a chronological list of which appears at the end of the present book, embrace not only a central theory of knowledge, but an application of his method to the history of philosophy, the philosophy of history, and the philosophy of religion. The system as a whole is an idealism of the Fichtean type, based on the self-knowledge of the spiritual agent. The fundamental categories, "noological" rather than psychological or logical, are revealed only in so far as the moral person asserts his prerogatives. Freedom, oneness with and dependence on God, are known through being enacted. The essence of knowledge is religious inspiration. The proof of the supremacy of the spiritual life lies in its power to exert itself, to resist nature and encompass the flux of time.

The critical issue here raised is, of course, an old story. This philosophy wages war on "intellectualism," and proposes to solve

problems by an appeal to life. Now practical problems may no doubt be removed by exhortation, but theoretical problems, in the very nature of the case, require an intellectual solution. If it be true that life is the key to their solution, this must be because life is essentially intelligible, not because it is alien to the intellect. Life can not play a part in theoretical philosophy until it assumes the form of a clear and logically workable conception. The failure to recognize this results, in the case of most activist philosophies, in confusion at the core. Without a clear and articulate exposition of the meaning of action, such a philosophy is not even debatable. This Mr. Gibson partially admits when he says: "I am convinced that Eucken is profoundly right in justifying the intuitive certainties that spring from heroic action, not, of course, as scientific conclusions, but as conclusions of fundamental personal value and significance." Philosophy is the deliberate attempt to deal scientifically, that is, explicitly and descriptively, with just such practical convictions, and the mere appeal to them does no more than to designate a field for analysis.

But even though the reader be unfavorably impressed with Eucken's philosophy, he can not fail to respond to his arousing moral zeal. We may agree that "it is spiritual heroism, and not an endless meditation, that solves the problems of life," and mean that morally speaking there is greater need of courage than of analysis. In its blend of rigorism with liberality, and of pietism with individualism and humanism, Eucken's message is timely and prophetic.

Mr. Gibson writes well, and is eminently qualified for his task through being an enthusiastic but independent disciple.

RALPH BARTON PERRY.

HARVARD UNIVERSITY.

JOURNALS AND NEW BOOKS

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. July, 1908, Band XIV., Heft 4. *Liber secundus economicorum Aristotelis*, II. (pp. 441-468): R. BLOCH. - The first part of this book is the work of a peripatetic, three to one hundred years B.C.; and the second, the work of a stoic, two to five hundred years A.D. *Pascals letztes Problem*, II. (pp. 469-491): F. KUNTZE. - Turning from physics to the religious problem of man's fall and restoration, Pascal elaborated a philosophy of history, and correlated thereto the growth of the individual soul. *Zur Vorgeschichte zweier Lockescher Begriffe*, II. (pp. 492-517): C. BAEUMKER. - The second concept, that of secondary as distinguished from primary qualities, approaches the Aristotelian-scholastic conception in asserting the objectivity of the secondary, in opposition to the theories of Democritus, Hobbes, and Boyle. But Locke departs from the scholastic view in his mechanical, quantitative interpretation of these qualities. The terms date back to the fourteenth century. *Über das Problem der Freiheit auf Grund von Kants Kategorienlehre* (pp. 518-534): J. STILL-

ING.—Freedom lies in feeling only, and signifies independence of the principle of sufficient reason, and of causality. *Platonisches Gebetsleben* (pp. 535–554): E. BICKEL.—The prayer at the close of the Phædrus is taken as indicative of the religious atmosphere prevalent in the academy. *Bericht über die Literatur der Philosophie der Renaissance in den Jahren 1899–1907*: E. APPEL.—Most attention is given to two works on Leonardo da Vinci. *Die neuesten Erscheinungen. Eingegangene Bücher.*

Berguer, Georges. *La notion de valeur*. Geneva: Georg & Co. 1908. Pp. 365.

Carus, Paul. *The Foundations of Mathematics*. A contribution to the philosophy of geometry. Chicago: The Open Court Publishing Co. 1908. Pp. iv + 141. 75 cents net.

Procli Diadochi in Platonis Cratylum Commentaria. Edited by Georgius Pasquali. Leipzig: B. G. Teubner. 1908. Pp. xiii + 149. 3 M.

Shaw, Charles Gray. *The Precinct of Religion in the Culture of Humanity*. London: Swan, Sonnenschein & Co.; New York: The Macmillan Co. 1908. Pp. xiii + 279. \$2.00 net.

Stein, Ludwig. *Philosophische Strömungen der Gegenwart*. Stuttgart: Ferdinand Enke. 1908. Pp. xvi + 452.

Voss, A. *Ueber das Wesen der Mathematik*. Leipzig: B. G. Teubner. 1908. Pp. 98. 3.60 M.

NOTES AND NEWS

WE take the following from the *Nation* of November 19: "The seventieth birthday of Professor Theodor Zahn, of Erlangen, a leader of the conservative theologians of Germany, is marked by the publication of a collection of special studies by his pupils in four different countries: 'Theologische Studien: Theodor Zahn dargebracht' (Leipzig: A. Deichert). The contents are as follows: Professor N. Bonwetsch, Göttingen, 'Der Schriftbeweis'; Dr. W. Caspari, Erlangen, 'Die Bundeslade'; Professor R. Grützmacher, Rostock, 'Die Haltbarkeit des Kanonbegriffs'; Professor Albert Hauck, Leipzig, 'Die angeblichen Mainzer Statuten von 1261'; Professor L. Ihmels, Leipzig, 'Dogmatik und Schriftwissenschaft'; Professor E. Nestle, Maulbronn, 'Kapernaum und Kaphas'; Dr. H. Ohl, Ratzeburg, 'Evangelische Lehre von der Buße'; Dr. W. Sanday, Oxford, 'The Apostolic Decree, Acts, XV., 20–29'; Professor E. Sellin, Vienna, 'Die Schiloh Weissagung'; Professor K. Jordan, Erlangen, 'Alter und Herkunft der lateinischen Uebersetzung des Hauptwerkes des Irenæus'; Professor A. Klostermann, Kiel, 'Schulwesen im alten Israel'; Professor R. Seeberg, Berlin, 'Zur Trinitätslehre'; Dr. G. Wohlenberg, Altona, 'Ein alter lateinischer Kommentar über die 4 Evangelien'; Professor A. Hjelt, Helsingfors, 'Mikael Agricola'; Professor K. Müller, Erlangen, 'Zum neutestamentlichen Sühneglauben'; Professor E. Riggensbach, Basel, 'Begriff der *ἁγία* im Hebräerbrief.' Each of the discussions may be bought separately."

According to *Nature*, November 5, "the program Archaeology and Anthropology in connection with the pool is sufficiently ambitious; but with working men Fraser, Newberry, and Myres it seems likely to be an institute, so far as British archeology is concerned, an archeological and historical survey of North Wales of excavations here it is hoped to train a body of staff available for similar work abroad. Besides this, schemes excavations in Egypt and British Honduras. As a result the institute has commenced the publication of a series of *Journal of Archaeology and Anthropology*, under the editorship of which the opening double number for September has been chiefly devoted to Egyptian and Hittite archeology. The most interesting contribution is the account by Dr. Winckler's excavations at Boghazkœni, in Cappadocia, of the discovery of a copy of the treaty between the Hittites and Ramses the Great fixes for the first time a definite chronology of the Hittite empire can be safely based."

DR. LEWIS CAMPBELL, emeritus professor of Greek at St. Andrews, died recently at Brissago, Lago Maggiore, in his ninth year. His works include "Religion in Greek Tragedy," "Drama in Æschylus, Sophocles, and Shakespeare," "Politics," "Sophistes," "Theætetus," and "Republique," the latter executed in cooperation with Jowett. He died after the study of Greek by an edition of Sophocles and Æschylus.

THE annual meeting of the American Anthropological Association will be held in Baltimore, December 28, 1908, to January 1, 1909, in connection with the American Folk-Lore Society and Section of the American Association for the Advancement of Science. Titles of papers should be sent immediately to Dr. George G. Allen, University, New Haven, Conn., who is responsible for the program.

"AUS DEUTSCH AMERIKA," by Professor Hugo M. E. S. Mittler und Sohn; New York: G. E. Stecher, 1908. Nineteen essays and addresses prepared for various occasions, on a variety of topics of general interest.

THE president and council of the Royal Society have awarded the Copley medal to Dr. Alfred Russel Wallace, in recognition of the value of his numerous contributions to natural history, and his work in working out the theory of the origin of species.

OTIS TUFTS MASON, head curator of the department of the U. S. National Museum, and eminent for his work in anthropology, died in Washington on November 5, at the age of 67 years.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

ON A SUPPOSED CRITERION OF THE ABSOLUTE TRUTH OF SOME PROPOSITIONS

PROFESSOR ROYCE in his address on "The Problem of Truth in the Light of Recent Research," delivered at the Third International Congress of Philosophy at Heidelberg, presents a criterion for the absolute truth of certain propositions which deserves our attention partly on account of the importance of the conclusions reached and partly on account of the peculiarity of the arguments used. After discussing three motives prevalent in recent investigations on the nature of truth, which are called instrumentalism, individualism, and absolute pragmatism, the author says:¹ "*Absolute truth is accessible to man in precisely so far as he can discover what it is that he will must necessarily do, however capriciously and freely it acts, so long as it retains any kind of rational connection in its life. Now there is but one way to find this out, and that is to discover, unquestionably by experiments in the combination and construction of ideas, what forms of combination and construction there exist such that if you try to suppose them non-existent, and if you nevertheless keep on acting at all, you inevitably contradict yourself. Exact mathematical research in the realm of the fundamental relations is able to show that the system of these relations has certain absolute forms. The only way to detect these forms is by attempting to deny that they are present, or that they are what one first sees them to be. In numerous cases (and these are precisely the cases where definite results can be reached) one hereupon discovers that to deny certain propositions about these fundamental relations inevitably implies the reassertion of the very propositions denied.* Thus Euclid discovered that the form of the ordinal sequence of the whole numbers is such as to require that there should be no last prime number. This proposition relates to a highly abstract matter, namely, to the type of relationship which characterizes the ordinal sequence of the natural numbers. Euclid

¹ The quotation is from the abstract which was prepared by the author for the use of the members of the congress; the italics are his.

proved this proposition, however, by showing that if any prime to be the last prime number, one ever for oneself the means to construct a later prime number. The proposition: There is no last prime number, was proved. The method here used by Euclid is one upon whose elaboration, and repeated applications of the newer researches into the foundations of logic depend. The result is that one finds propositions whose denial implies their truth. Such propositions are shown to be true in precisely the sense which they are intended to be the genuine sense in which we may call truths of mathematics and modern pure logic contain absolute truths.

The argumentation of the author is very clear and absolutely true if its denial implies the proposition proved by Euclid's proof of the theorem of the "prime numbers." Theorems which are proved in this manner, indeed, very frequent in all parts of mathematics, have as a feature of the proof consists in showing that the denial of the theorem in question involves a contradiction either with the principles or with a proposition proved and connected with one of the conditions of the problem. In all such cases one concludes, after having successfully shown that the denial of the theorem in question is false, that the theorem is true, since only one of two contradictory propositions can be true. These proofs are called *apagogical*, or *indirect*, in contradistinction to the direct demonstrations, in which the theorem is proved by showing how it can be deduced from the principles. Euclid begins his proof of the inexhaustibility of the number of primes by assuming that this theorem is not true, *i. e.*, that there is a finite number of primes. In a finite series of terms, which are different, one term must be greater than the others, and it follows from this that there must be a greatest term, which is the greatest of all. This consequence, however, contradicts the theorem that one can readily find at least one prime greater than the number that was supposed to be the last prime, which can not be divided by it or by any one of the numbers less than it.

The author attributes the character of absolute truths to mathematical propositions proved indirectly. It is asked whether there exists such a fundamental difference between theorems proved directly and those proved indirectly.

authorize us to attribute the character of absolute truth to one group of theorems and not to the other. Direct and indirect demonstrations, as a matter of fact, are used promiscuously for the proof of any theorem, except, of course, in cases where the difficulties of the demonstration are so great that only one method of demonstrating could be found until now. This is, however, the case with only very complicated theorems, the truth of which depends so obviously on that of simpler propositions that one certainly will not attribute the character of absolute truth to the complicated propositions if it does not belong to the simpler ones. If a direct proof is given of a proposition which was proved formerly by the indirect method, does it lose its character of absolute truth? This is a pertinent question, since it refers to the very example given by the author. There is not the slightest difficulty in demonstrating the theorem of the inexhaustibility of prime numbers directly, since Dirichlet has discovered the following theorem: An infinite arithmetical series, the first term of which and the difference between two consecutive terms of which are prime numbers, contains an infinity of primes. Euclid's proposition follows from Dirichlet's theorem by direct proof, since the ordinal sequence of the whole numbers is a series such as spoken of in Dirichlet's theorem. It is not always easy to find a direct demonstration of a theorem which is proved apagogically, but it is always a very simple matter to find an indirect demonstration of a theorem which was demonstrated directly. All that is needed for this purpose is to deduce from the opposite of the theorem in question a conclusion which contradicts any one of the propositions constituting the *nervus probandi* of the direct proof. If we give an indirect demonstration of a proposition which was proved directly formerly, do we create an absolute truth by this apagogical demonstration? The author's distinction could be sustained if there were some theorems which can not be proved directly and others which can not be demonstrated indirectly, but it is contradicted by the fact that the two types of demonstrations are used promiscuously.²

It is not difficult to see that the difference between direct and indirect demonstration can not possibly constitute a thoroughgoing difference between mathematical propositions. A system of mathematics is the class of all propositions which can be deduced by merely logical processes from a given set of fundamental propositions. From this it follows that the opposite of any such theorem does not belong to this class, i. e., that it is in contradiction to the

² The remark that the method of demonstration can not involve a fundamental difference between mathematical propositions, because every theorem which is proved directly can be proved indirectly, was also made by Professor Jerusalem in the course of the discussion following the author's address.

transsubjective. It would be a fundamental and hopeless mistake, however, to suppose that this transsubjective realm is a realm of objects separate from the inner life of the conscious individual, and to suppose further that the problem of the knower is then that of copying or imitating with his subjective conscious states these assumed outer facts, in that case looked upon as more real and controlling. This is, of course, the mistake of realistic metaphysics; and it is the mistake which Dr. Schmitt charges against philosophy through all the ages. Sound thinking must recognize, however, he judges, that the reality of the object is defined for us through the leadership of certain systematizing elements in our consciousness, which he calls dimensional relations, or dimensional functions. Our apprehension of the bearing of these systematizing factors is an intuitive and immediate one, and it is upon the basis of this intuitive consciousness of truth, directly given in our inner life, that positive science is founded.

Now, the capital error of philosophy, Dr. Schmitt charges, consists in minimizing the significance of the inner life, by treating it as subjective, weak, and faint, and by setting it the task of imitating a truth supposed to be external to it, more real and more objective. Such an attitude is proper to natural science, which does not strive to be critical; but better things are expected of philosophy. Yet philosophy has never succeeded in divesting itself of this realistic attitude, however strong the idealistic teachings may have become.

It is evident that this charge is only partially true. Undoubtedly realistic elements have persisted powerfully in the history of philosophy. They have their degree of truth, which, when properly grounded, our author also would admit. But since Socrates and Plato, philosophy can not fairly be charged with ignoring the significance of the idealism of consciousness, or with treating ideals as the weak copies of physical facts. On the other hand, the progressive insight which philosophy has developed regarding the spiritual universal implied in knowledge, and its identity with the ground of being, is to most men the thing which determines the character and significance of philosophy.

In the historical portion, the author points out the realistic character of the thought of Thales, and says, "The confusion of the tendencies and aims of natural knowledge with this manner of investigating the most elementary foundations of life and being appears here in its historical establishment as typical and determining for philosophy even to our day" (p. 190). The sophists, however, were applauded for their discovery of the mental life, and Socrates for his emphasis upon the universal element in its nature. Platonism comes in for extensive commendation, and its most significant doctrines are discussed in detail, especially the reality of the concept and the idea of the good. The idealism of Plato is regarded, however, as not perfected, and therefore Plato exhibits the characteristic error of philosophy. Aristotle relapses into a more realistic attitude, even to asserting the truth of sense perception, and therefore draws a heavier fire than Plato; yet the concreteness of his system is regarded as all to the good, and his doctrines of teleology, of development, and of God as

Universal Reason, are commended and appropriated. In modern philosophy Kant's emphasis upon the activity of the mind in the construction of scientific experience is commended, but his restriction of genuine knowledge to the categories of mechanical science is opposed as another form of the old error of philosophy. The characteristic teachings of subsequent German idealism are expounded with keen and sympathetic insight, and with a large excess of commendation over criticism. Even German idealism, however, has not fully carried out the task of measuring truth in terms of the implications of the inner life, and in so far falls under the condemnation visited upon all philosophy.

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E. L. HINMAN.

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Rudolf Eucken's Philosophy of Life. W. R. BOYCE GIBSON. Second edition. London: Adam and Charles Black. 1907. Pp. viii + 182.

This book serves English readers as a general introduction to the personality, writings, and philosophical system of Professor Rudolf Eucken, of Jena. The phrase "philosophy of life" gives rise to a possible misunderstanding; for it is intended to indicate, not the practical application of Eucken's philosophy, but the central place in his system of the *Geistesleben*, the spiritual life and its categories. The present edition differs from the first edition, published in 1906, in that it includes an appendix on "Activism," which provides for the emphasis given to the problem of "action" in Eucken's most recent publications, the "Grundlinien einer neuen Lebensanschauung" and the "Hauptprobleme der Religionsphilosophie der Gegenwart."

Professor Eucken's writings, a chronological list of which appears at the end of the present book, embrace not only a central theory of knowledge, but an application of his method to the history of philosophy, the philosophy of history, and the philosophy of religion. The system as a whole is an idealism of the Fichtean type, based on the self-knowledge of the spiritual agent. The fundamental categories, "noological" rather than psychological or logical, are revealed only in so far as the moral person asserts his prerogatives. Freedom, oneness with and dependence on God, are known through being enacted. The essence of knowledge is religious inspiration. The proof of the supremacy of the spiritual life lies in its power to exert itself, to resist nature and encompass the flux of time.

The critical issue here raised is, of course, an old story. This philosophy wages war on "intellectualism," and proposes to solve

problems by an appeal to life. Now practical problems can be removed by exhortation, but theoretical problems, in the case of the case, require an intellectual solution. If it be the key to their solution, this must be because life is intelligible, not because it is alien to the intellect. Life can enter into theoretical philosophy until it assumes the form of a logically workable conception. The failure to recognize the case of most activist philosophies, in confusion about a clear and articulate exposition of the meaning of philosophy is not even debatable. This Mr. Gibson shows when he says: "I am convinced that Eucken is proceeding to justify the intuitive certainties that spring from life, not of course, as scientific conclusions, but as conclusions of personal value and significance." Philosophy is the demand to deal scientifically, that is, explicitly and descriptively, with practical convictions, and the mere appeal to them does not designate a field for analysis.

But even though the reader be unfavorably impressed with this philosophy, he can not fail to respond to his arousing. He may agree that "it is spiritual heroism, and not an ethic that solves the problems of life," and mean that there is a greater need of courage than of analysis. In its simplicity and with liberality, and of pietism with individualism Eucken's message is timely and prophetic.

Mr. Gibson writes well, and is eminently qualified for this, being an enthusiastic but independent disciple.

RALPH

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JOURNALS AND NEW BOOKS

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE

Band XIV., Heft 4. *Liber secundus economicorum* (pp. 441-468): R. BLOCH. - The first part of this book is devoted to the stoic, three to one hundred years B.C.; and the second to the stoic, two to five hundred years A.D. *Pascals letztes Buch* (pp. 469-491): F. KUNTZE. - Turning from physics to the history of man's fall and restoration, Pascal elaborated a philosophy and correlated thereto the growth of the individual. *Die geschichte zweier Lockescher Begriffe*, II. (pp. 492-517): F. KUNTZE. - The second concept, that of secondary as distinguished from primary qualities, approaches the Aristotelian-scholastic conception of the objectivity of the secondary, in opposition to Democritus, Hobbes, and Boyle. But Locke departs from this view in his mechanical, quantitative interpretation. The terms date back to the fourteenth century. *Über die Freiheit auf Grund von Kants Kategorienlehre* (pp. 518-537): F. KUNTZE.

ING.—Freedom lies in feeling only, and signifies independence of the principle of sufficient reason, and of causality. *Platonisches Gebetsleben* (pp. 535–554): E. BICKEL.—The prayer at the close of the Phædrus is taken as indicative of the religious atmosphere prevalent in the academy. *Bericht über die Literatur der Philosophie der Renaissance in den Jahren 1899–1907*: E. APPEL.—Most attention is given to two works on Leonardo da Vinci. *Die neuesten Erscheinungen. Eingegangene Bücher.*

Berguer, Georges. *La notion de valeur*. Geneva: Georg & Co. 1908. Pp. 365.

Carus, Paul. *The Foundations of Mathematics*. A contribution to the philosophy of geometry. Chicago: The Open Court Publishing Co. 1908. Pp. iv + 141. 75 cents net.

Procli Diadochi in Platonis Cratylum Commentaria. Edited by Georgius Pasquali. Leipzig: B. G. Teubner. 1908. Pp. xiii + 149. 3 M.

Shaw, Charles Gray. *The Precinct of Religion in the Culture of Humanity*. London: Swan, Sonnenschein & Co.; New York: The Macmillan Co. 1908. Pp. xiii + 279. \$2.00 net.

Stein, Ludwig. *Philosophische Strömungen der Gegenwart*. Stuttgart: Ferdinand Enke. 1908. Pp. xvi + 452.

Voss, A. *Ueber das Wesen der Mathematik*. Leipzig: B. G. Teubner. 1908. Pp. 98. 3.60 M.

NOTES AND NEWS

WE take the following from the *Nation* of November 19: "The seventieth birthday of Professor Theodor Zahn, of Erlangen, a leader of the conservative theologians of Germany, is marked by the publication of a collection of special studies by his pupils in four different countries: 'Theologische Studien: Theodor Zahn dargebracht' (Leipzig: A. Deichert). The contents are as follows: Professor N. Bonwetsch, Göttingen, 'Der Schriftbeweis'; Dr. W. Caspari, Erlangen, 'Die Bundeslade'; Professor R. Grützmacher, Rostock, 'Die Haltbarkeit des Kanonbegriffs'; Professor Albert Hauck, Leipzig, 'Die angeblichen Mainzer Statuten von 1261'; Professor L. Ihmels, Leipzig, 'Dogmatik und Schriftwissenschaft'; Professor E. Nestle, Maulbron, 'Kapernaum und Kaphas'; Dr. H. Ohl, Ratzeberg, 'Evangelische Lehre von der Buße'; Dr. W. Sanday, Oxford, 'The Apostolic Decree, Acts, XV., 20–29'; Professor E. Sellin, Vienna, 'Die Schiloh Weissagung'; Professor K. Jordan, Erlangen, 'Alter und Herkunft der lateinischen Uebersetzung des Hauptwerkes des Irenæus'; Professor A. Klostermann, Kiel, 'Schulwesen im alten Israel'; Professor R. Seeberg, Berlin, 'Zur Trinitätslehre'; Dr. G. Wohlenberg, Altona, 'Ein alter lateinischer Kommentar über die 4 Evangelien'; Professor A. Hjelt, Helsingfors, 'Mikael Agricola'; Professor K. Müller, Erlangen, 'Zum neutestamentlichen Sühneglauben'; Professor E. Riggenbach, Basel, 'Begriff der *ἁγία* im Hebräerbrief.' Each of the discussions may be bought separately."

According to *Nature*, November 5, "the program Archeology and Anthropology in connection with the pool is sufficiently ambitious; but with working men Frazer, Newberry, and Myres it seems likely to achieve, so far as British archeology is concerned, an archeological and historical survey of North Wales of excavations here it is hoped to train a body of men available for similar work abroad. Besides this, schemes excavations in Egypt and British Honduras. As a result an institute has commenced the publication of a series of *Journal of Archeology and Anthropology*, under the editorship of J. H. Breasted, in which the opening double number for September has been chiefly devoted to Egyptian and Hittite archeology. The most interesting contribution is the account by Dr. Winckler's excavations at Boghazkeui, in which the discovery of a copy of the treaty between the Hittites and Ramses the Great fixes for the first time a definite chronology of the Hittite empire can be safely based."

DR. LEWIS CAMPBELL, emeritus professor of Greek at St. Andrews, died recently at Brissago, Lago Maggiore, in his ninth year. His works include "Religion in Greek Literature," "Drama in Æschylus, Sophocles, and Shakespeare," "Politics," "Sophists," Theætetus," and "Republic," the latter executed in cooperation with Jowett. He directed the study of Greek by an edition of Sophocles and Æschylus.

THE annual meeting of the American Anthropological Association was held in Baltimore, December 28, 1908, to January 1, 1909, with the American Folk-Lore Society and Section of the Association for the Advancement of Science. Titles of papers should be sent immediately to Dr. George G. Henshaw, University, New Haven, Conn., who is responsible for the program.

"*AUS DEUTSCH AMERIKA*," by Professor Hugo Meier, E. S. Mittler und Sohn; New York: G. E. Stecher, contains nineteen essays and addresses prepared for various occasions, a variety of topics of general interest.

THE president and council of the Royal Society have awarded the Copley medal to Dr. Alfred Russel Wallace, in recognition of the value of his numerous contributions to natural history, and took in working out the theory of the origin of species.

OTIS TUFTS MASON, head curator of the department of the U. S. National Museum, and eminent for his work in anthropology, died in Washington on November 5, at the age of 67 years.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

ON A SUPPOSED CRITERION OF THE ABSOLUTE TRUTH OF SOME PROPOSITIONS

PROFESSOR ROYCE in his address on "The Problem of Truth in the Light of Recent Research," delivered at the Third International Congress of Philosophy at Heidelberg, presents a criterion for the absolute truth of certain propositions which deserves our attention partly on account of the importance of the conclusions reached and partly on account of the peculiarity of the arguments used. After discussing three motives prevalent in recent investigations on the nature of truth, which are called instrumentalism, individualism, and absolute pragmatism, the author says:¹ "*Absolute truth is accessible to man in precisely so far as he can discover what it is that he will must necessarily do, however capriciously and freely it acts, so long as it retains any kind of rational connection in its life. Now there is but one way to find this out, and that is to discover, unquestionably by experiments in the combination and construction of ideas, what forms of combination and construction there exist such that if you try to suppose them non-existent, and if you nevertheless keep on acting at all, you inevitably contradict yourself. Exact mathematical research in the realm of the fundamental relations is able to show that the system of these relations has certain absolute forms. The only way to detect these forms is by attempting to deny that they are present, or that they are what one first sees them to be. In numerous cases (and these are precisely the cases where definite results can be reached) one hereupon discovers that to deny certain propositions about these fundamental relations inevitably implies the reassertion of the very propositions denied.* Thus Euclid discovered that the form of the ordinal sequence of the whole numbers is such as to require that there should be no last prime number. This proposition relates to a highly abstract matter, namely, to the type of relationship which characterizes the ordinal sequence of the natural numbers. Euclid

¹ The quotation is from the abstract which was prepared by the author for the use of the members of the congress; the italics are his.

proved this proposition, however, by showing that any prime to be the last prime number, one even for oneself the means to construct a later prime and proposition: There is no last prime number, was a proposition whose contradictory implied the proposition was to be proved. The method here used by Euclid upon whose elaboration, and repeated application significant of the newer researches into the function depend. The result is that one finds propositions whose denial of them implies their truth. Such propositions shown to be true in precisely the sense which they are to be the genuine sense in which we may call truths of mathematics and modern pure logic contain absolute truth.

The argumentation of the author is very clear and absolutely true if its denial implies the proposition to be proved by Euclid's proof of the theorem of the "infinitude of prime numbers." Theorems which are proved indirectly, very frequent in all parts of mathematics, the feature of the proof consists in showing that the theorem in question involves a contradiction either with principles or with a proposition proved and consistent with one of the conditions of the problem. In such cases one concludes, after having successfully shown that the denial of the theorem in question is false, that the theorem is true, since only one of two contradictory propositions can be true. These proofs are called apagogical, or indirect, in contradistinction to the direct demonstrations, in which the theorem is proved by showing how it can be deduced from known truths. Euclid begins his proof of the infinitude of primes by assuming that this theorem is not true, i. e., that there is a finite number of primes. In a finite series of terms which are different, one term must be greater than the sum of the other terms, and it follows from this that there must be a term which is the greatest of all. This consequence, however, contradicts the assumption that one can find at least one prime greater than the number that was supposed to be the last prime, which can not be divided by it or by any one of the other primes.

The author attributes the character of absolute truth to mathematical propositions proved indirectly. It is asked whether there exists such a fundamental difference between theorems proved directly and those proved indirectly.

authorize us to attribute the character of absolute truth to one group of theorems and not to the other. Direct and indirect demonstrations, as a matter of fact, are used promiscuously for the proof of any theorem, except, of course, in cases where the difficulties of the demonstration are so great that only one method of demonstrating could be found until now. This is, however, the case with only very complicated theorems, the truth of which depends so obviously on that of simpler propositions that one certainly will not attribute the character of absolute truth to the complicated propositions if it does not belong to the simpler ones. If a direct proof is given of a proposition which was proved formerly by the indirect method, does it lose its character of absolute truth? This is a pertinent question, since it refers to the very example given by the author. There is not the slightest difficulty in demonstrating the theorem of the inexhaustibility of prime numbers directly, since Dirichlet has discovered the following theorem: An infinite arithmetical series, the first term of which and the difference between two consecutive terms of which are prime numbers, contains an infinity of primes. Euclid's proposition follows from Dirichlet's theorem by direct proof, since the ordinal sequence of the whole numbers is a series such as spoken of in Dirichlet's theorem. It is not always easy to find a direct demonstration of a theorem which is proved apagogically, but it is always a very simple matter to find an indirect demonstration of a theorem which was demonstrated directly. All that is needed for this purpose is to deduce from the opposite of the theorem in question a conclusion which contradicts any one of the propositions constituting the *nervus probandi* of the direct proof. If we give an indirect demonstration of a proposition which was proved directly formerly, do we create an absolute truth by this apagogical demonstration? The author's distinction could be sustained if there were some theorems which can not be proved directly and others which can not be demonstrated indirectly, but it is contradicted by the fact that the two types of demonstrations are used promiscuously.²

It is not difficult to see that the difference between direct and indirect demonstration can not possibly constitute a thoroughgoing difference between mathematical propositions. A system of mathematics is the class of all propositions which can be deduced by merely logical processes from a given set of fundamental propositions. From this it follows that the opposite of any such theorem does not belong to this class, i. e., that it is in contradiction to the

²The remark that the method of demonstration can not involve a fundamental difference between mathematical propositions, because every theorem which is proved directly can be proved indirectly, was also made by Professor Jerusalem in the course of the discussion following the author's address.

principles. To show that a certain proposition involves a contradiction, or to show that its opposite can be obtained from the set of fundamental principles by deductions involving merely logical processes, is the same. From this it follows that every theorem belonging to a system of mathematics can be demonstrated by apagogical proof. For this reason one can not attribute the character of absolute truth to certain mathematical theorems because they were proved indirectly: absolute truth belongs to all mathematical propositions or to none of them.

The fact that the indirect demonstration of a theorem does not give it prominence among the other theorems belonging to the same system becomes apparent in the case of conclusions drawn from sets of principles which are obviously arbitrary. It is not quite obvious to everybody not trained in modern pure logic that the choice of the set of fundamental propositions of mathematics is more or less arbitrary, as this is best seen from the discussions of non-Euclidean geometry. This difficulty is still greater in the case of algebra, and for this reason the following example was devised. It refers to a set of principles about the logical arbitrariness of which there is not the slightest doubt. Let the set of fundamental propositions be represented by the rules and regulations of the U. S. mail service regarding the acceptance and forwarding of domestic money orders. A man *A* owes to *B* the sum of \$5.06. *B* moves to another town, and asks *A* to send all the money by one money order and to subtract at once the cost of the money order from the original debt. In this case the proposition holds that *A* can not comply with *B*'s instructions. Let us start from the assumption that our proposition is false, *i. e.*, that *A* can send the money in the way required by *B*. If the money is to be sent by one money order, *A* must send it either at the rate for orders from \$2.51 to \$5, which is 5 cents, or at the rate of 8 cents for orders from \$5.01 to \$10. In the first case *A* would have to subtract 5 cents from \$5.06, which leaves \$5.01, which is accepted only at the rate of 8 cents; but if *A* tries to send the money at the higher rate, he has left only \$4.98, which is forwarded at the rate of 5 cents. In the first case *A* is 3 cents short, and in the second case he has 3 cents left. The very supposition, therefore, that *A* can send the money as instructed by *B* implies that he can not do it. The proposition is proved indirectly and the author's criterion for absolute truth is obviously fulfilled, but who will be inclined to call this proposition absolutely true?

Let us see in which sense mathematical propositions may be called true. It may be allowed to follow the presentation of the problem recently given in connection with an inquiry into some of the prob-

lems of psychophysics.⁸ Mathematical propositions are derived from a set of fundamental propositions by merely logical processes; these propositions should be necessary and sufficient, which implies that they are independent of each other. The logical truth of a proposition consists in its agreement with these principles, but these principles themselves are logically neither true nor false, because each one of them may be substituted by its logical opposite without contradiction. The logical truth of a proposition refers to a certain set of fundamental principles, and if a proposition is true in regard to one set it certainly will not be true in regard to another set obtained from the first by changing one of the principles necessary for deducing the proposition. From this it follows that the truth of every mathematical theorem depends on the truth of the set of fundamental propositions from which it is derived, and no theorem can be said to be absolutely true since every single proposition, or every group of propositions, or the whole set of propositions from which it is deduced, may be denied. No mathematical proposition possesses absolute truth, since there exists no logical necessity for accepting any system of fundamental propositions. The author's criterion of the absolute truth of a proposition, therefore, can be sustained neither in particular when restricted to propositions which are proved indirectly nor in general when referred to mathematical propositions of every description.

Designating by the letter *N* a certain proposition, and by *M* the set of fundamental propositions which are necessary and sufficient to deduce this proposition, then the logical truth of it means merely that "*M* implies *N*." This proposition is independent of the acceptance or denial of the fundamental propositions, since the statement "*M* implies *N*" refers merely to the logical connection between *M* and *N* and contains nothing more than the assertion of the fact that *N* is a logical consequence of *M*. Let us apply these results to the two examples given above. We designate by *M* in the first case the set of propositions necessary and sufficient to deduce the system of ordinary algebra, and by *N* the theorem of the inexhaustibility of prime numbers. The truth of the proposition *N* depends entirely on the acceptance or denial of *M*, but the truth of the proposition "*M* implies *N*" is independent of *M*. Designating in a similar way by *M* the rules and regulations for the acceptance of money orders by the U. S. post offices, and by *N* the proposition which states the impossibility of sending the money as required by *B*, we obtain again the proposition "*M* implies *N*," which is independent of the truth of

⁸ F. M. Urban, "The Application of Statistical Methods to the Problems of Psychophysics," 1908, pp. 139-179, especially pp. 142-147.

M. The entire system of forwarding money may will remain true that under the given conditions *M* follows out *B*'s instructions. An infinite number of statements "*M* implies *N*" may be made, since *M* may represent fundamental propositions, and *N* any proposition following from them, but it seems that the logical process involved is the same. The fundamental principles of a system are the general qualities of the objects treated of. A single step in a demonstration consists always in showing that a certain object or a certain operation is such as is a consequence of the fundamental principles, from which one concludes that the object must have certain qualities or that the operation must proceed from the general to the particular. Propositions of the type "*M* implies *N*" contain the assertion of the subsumption of a particular under a general, or the performance of a subsumption, or a chain of subsumptions which implies that there does not exist a logical contradiction between the singular and the general under which they stand. These propositions do not deserve the name of empirical, for they state merely the requirement to which every object must conform in order to be an element of a given system.

Abstract systems of science have nothing to do with the existence or non-existence of the objects they speak of. They are applicable to a certain realm of experience only in so far as that its objects are such as are spoken of in the propositions. Such a statement must be founded on experience, and it is vain to deduce the existence of any object from propositions. A proposition is called empirically true if it is the description of an empirical fact, and a system is called empirically true if an empirical fact can be deduced from a proposition of the system. One may be sure that a system of propositions is empirically true if they are a consistent set of fundamental propositions that are empirically true, in respect the principle holds that a proposition is empirically true if the logical processes from a set of propositions which are empirically true lead to a proposition which is empirically true. Logical truth and empirical truth coincide if the set of fundamental propositions possesses the principle.

It is very difficult to make sure of the empirical truth of propositions which form the basis of those systems of science which are called empirical sciences in the restricted sense. In such cases it is very easy in those cases where the system of science is contrary to experience. Such cases are very serviceable as illustrations of the difference between empirical and logical truth. The systems are not imaginable for the acceptance of money.

are logically true, but among these systems there is only one which has empirical truth too, namely, the one which is actually in force and which is represented by those rules and regulations with which one has to comply if one wishes to forward money through the U. S. postal service. Every logical conclusion drawn from this set is also empirically true, and the system is complete, since the order will be accepted only in one of the cases provided for by the law. The proposition " M implies N " will remain true and the character of logical truth of the proposition N will be preserved, even if an entirely new set of regulations for the acceptance of money orders should be passed. Our problem will thus retain its humoristic value as a conundrum, which it shares with many a problem of modern pure logic, but the proposition N will cease to be empirically true when our man A will be able to forward the money as required by B .

To attribute the character of absolute truth to the proposition " M implies N " is equivalent to saying that the principles of logic are absolutely true. To regard every single proposition of this form as an absolute truth increases our stock of absolute truths enormously, though in a somewhat doubtful way, since propositions of this type can be formed not only of the theorems of mathematics, but also of any classification or definition no matter how arbitrary it may be. Let a definition be given in the form $A = abc \dots$ then each one of the propositions " $A = abc \dots$ implies A is a ," " $A = abc \dots$ implies A is b ," $\dots$ must be called absolutely true. The definition may be perfectly arbitrary, but the truth of the implication does not depend on the acceptance or denial of it. In a similar way let us designate by the letter M the lemma " A is either a , or b , $\dots$ or n ," then each one of the propositions " M implies, a is A ," " M implies, b is A ," $\dots$ is a proposition the truth of which does not depend on the acceptance of the lemma. These examples show clearly that the formal character of all these propositions is the same and that their truth is identical with that of the principles of logic.

The principles of logic are, therefore, the only propositions which regard abstract systems of thought and the truth of which is independent of any supposition. They may be said to be absolutely true in so far as no proposition of an abstract system must contradict them, but there remains the problem why phenomena of actual experience also must comply with them. This is required by the above-mentioned principle that a proposition deduced by merely logical processes from a set of empirically true propositions must be empirically true. We may express it in short by asking how the principles of logic come to have empirical truth. This question

refers to the problem why the laws of thought are the laws of things, a problem the solution of which is begged : principles of logic to be absolutely true.

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THE TRUE GOD OF SCHOLASTICISM

IN the celebrated work on "Pragmatism" of the psychologist and philosopher, William James, the following lines: "Old fashioned theism was bad enough. The idea of God as an exalted monarch, made up of a lot of preposterous attributes; but so long as it held argument from design, it kept some touch with reality. Since, however, darwinism has once for all displaced the minds of the 'scientific,' theism has lost that kind of an immanent or pantheistic deity working from within than above them is, if any, the kind recommended by a temporary imagination. Aspirants to a philosophy, however, more hopefully nowadays towards idealism than towards the other dualistic theism, in spite of the fact that it still counts able defenders" (p. 70).

Speaking about traditional theism, Professor James said: "It is the lineal descendant, through one school after another, of the dogmatic scholastic theism which flourished in the seminaries of the Catholic church. It was used to be called among us the philosophy of theism" (pp. 17, 18).

And a few lines further he gives the following "theistic God": "You have to go to the world with a blank mind to get any inkling of his actual character: he is the God who has once for all made that kind of a world. The world as the writers lives on as purely abstract heights as idealism. Absolutism has a certain sweep and dash about it, but theism is more insipid, but both are equally remote" (pp. 19, 20).

On reading these lines, the student of post-Kantian philosophy is at once reminded of Hegel's sharp attack on the philosophy of theism. Like William James to-day, the author had told us of a metaphysical system in which "things were cut off from their connection, their solidities, in which a knowledge of the absolute was supposed

assigning predicates to it. The Swabian thinker, however, had prudently abstained from giving us the names of his pre-Kantian dogmatists. With less circumspection, or perhaps more self-reliance, Mr. James speaks of the Scottish school, which he regards as the direct, legitimate, and pallid offspring of old scholasticism.

I believe that, in the assignation of such a parentage, an injustice is done to the medieval theologians; and I will, therefore, step forward and venture to defend their God, that old scholastic God, so little studied to-day, yet so great, as of old.

It is no doubt true that scholastics love to expatiate on the attributes of the Deity. Thomas Aquinas, after demonstrating the existence of a Supreme Being, studies him in his goodness, his infinity, his immutability, his eternity, his omniscience, his will, etc. It seems, indeed, that we are in the presence of a bundle of attributes, of a sheaf of perfection $\bar{u}$ s, bound together by we know not what tie. Let us not, however, stop at the surface of St. Thomas's thought. Let us enter deep into the pure waters of his doctrine, so as to commune, as it were, with his mind, and bring our heart and our soul in unison with his own. Nowhere more than in philosophy is a cursory judgment fraught with dangerous consequences.

The Angelic Doctor repeatedly discusses the question whether names may be applied to God. He is of opinion that they may; but he warns us against the pretension of describing thereby God's essence. Words, he says, refer to things, by means of the conceptions of the intellect. Just in so far as our intellect can know, it can also name. But as in this life we have no intuition of the Divine Essence, and can know God only from his creatures, we can name him from his creatures, but are incapable of expressing his essence by words.¹

It follows therefrom that a plurality of names is not incompatible with the simplicity of the Divine Essence. All perfections found in created things may be said to exist in God as effects exist in their equivocal causes. Such effects are not in their causes formally, but virtually. The sun produces a variety of effects in our world. It is the cause of heat, of drought, of life, of death. It makes plants grow; it makes them wither. Now it brings verdancy to our meadows; now it parches the grass of our lawn. And the great luminary might be thus diversely described. It is, notwithstanding, one single and identical sun. So it is with God. We love goodness in the things that surround us: we attribute such a goodness to their creator as their primary cause, and call him the good God; we admire the power of nature and the power of man: we know that this power comes from the maker and sustainer of man and nature,

¹ Cf. Thomas Aquinas, S. Th. 1, XIII., 1, c.

and we call him the all-powerful; we admire sages and call God omniscient. But this God as good, and powerful, and wise, is essentially is his very being,² his intellect is his very being.⁴ There is in him no composition of because he is not a body;⁵ there is no composition of form;⁶ no composition of genus and differentia subject and accidents.⁸ He is absolutely simple *simpliciter*.

Let us now pass to the question of the creation of that world which, Mr. James assures us, the once for all," after which he went to rest in "the heights," where he now lies "remote and vacuum."

No doubt many Christians conceive creation of an event that took place in time. They regard a worthy gentleman, who led at first a solitary life on a certain day—a little more than sixty centuries before the year of our Lord 1908—suddenly made up his mind to create the earth, the sun, the moon and the stars, the animals since that day, he lives in some remote and unknown world where beyond the stars, while the world goes on with its joys and sorrows, its virtues and vices, its diabolical perversity. Such a naïve theology existed. I know more than one Catholic lad; he would defend it tooth and nail. Fresh in our minds are the beautiful verses of the great French lyric:

Lorsque du Créateur la parole féconde
Dans une heure fatale eut enfanté le monde
Des germes du chaos,
De son œuvre imparfaite il détourna sa face
Et, d'un pied dédaigneux, la lançant dans l'espace
Rentra dans son repos.

It would be, however, sovereignly unjust to reproach the genius of Aquin with this short-sighted theology. His thinking is farther from his thought than the concept of infinity is from the infinite series of successive instants.

Whenever we perceive succession, he argues, the existence of a whole follows another element, therefore the idea of time, which is the measure of motion.

² *Ibid.*, I, III., 4.

³ *Ibid.*, I, XIV., 4.

⁴ *Ibid.*, XIX., 1.

⁵ *Ibid.*, III., 1.

⁶ *Ibid.*, III., 2.

⁷ *Ibid.*, III., 5.

⁸ *Ibid.*, III., 6.

being, on the other hand, exists in a state of perfect uniformity: it is not temporal, but eternal. Eternity does not, therefore, mean simply the absence of beginning and of end: it also and chiefly means the absence of succession. Eternity is a perennial present.⁹

We are now in a position to understand how absurd it would be to speak of God as having created the world sixty or more centuries ago. Now he is and now he creates the world.

A striking confirmation of this view may be derived from the scholastic doctrine of preservation. The creation of the world was so little a thing, "made once for all," that it must be continued through every instant; and, should it cease for one moment, the world would be instantly annihilated. There are, St. Thomas teaches, two kinds of preservation: the one, indirect and accidental; the other, direct. Indirect preservation occurs when the action of the agent is limited to the remotion of the destructive causes; and thus a mother may be said to preserve her child when she prevents him from falling into the fire. It is not thus that God preserves the world. He preserves it directly; which means that the world depends upon him and could not persist in existence without his preserving action. God's action upon the world may be compared to the way in which the sun illumines the air. The air participates in the light of the sun, although not in its nature. It remains luminous as long as the sun continues shining and falls back into darkness as soon as the great luminary disappears.

And this preservation of the universe is not a new action, numerically distinct from the creative fiat. It is the very act by which God gave—or rather gives—existence to the world.¹⁰

It may be objected, however, that, in the preceding paragraphs, we have considered the world from God's point of view. What if we should consider it from the point of view of man? If we go back through the series of centuries that have preceded our own, shall we reach a true beginning, a first instant before which nothing was? or will our series be infinite? Could we assign a date to the creation? Did it take place in time, or is the world "eternal"?

In his "Critique of Pure Reason" Kant gives the following profound definition of the Divine Being: "The necessary condition of the absolute totality of the series of phenomena";¹¹ and he adds: "The existence of such an absolutely necessary being may be impossible; but this can never be demonstrated from the universal contingency and dependence of sensuous phenomena, nor from the principle which forbids to discontinue the series at some member."¹²

⁹ *Ibid.*, 1, X., art. 1.

¹⁰ *Ibid.*, 1, CIV., art. 1.

¹¹ Bohn's ed., p. 286.

¹² *Ibid.*, p. 347.

infinite if the infinitude of time is more in harmony with his will; but, in either case, God will be outside of the series; he will not, therefore, precede time.

And, after expounding so splendid a theory, St. Thomas proceeds to refute the objections by which it may be assailed.

If the world had always existed, some one might object, it would be equal to God in duration; but no creature can be equal to the creator in any respect; therefore the world has not always existed.

This objection, St. Thomas answers, is based upon a total ignorance of the nature of eternal duration. The essential difference between time and eternity does not lie in the fact that time had a beginning, while eternity has none. It consists in the element of succession, the presence of which constitutes time, the absence of which constitutes eternity. If the world has always existed, it is, therefore, as properly temporal as if it had been created some centuries since.

But, the objector will rejoin, if the world has always existed, its history up to the present time covers an infinite number of years. As an infinite number, however, can not be completed, the number of years that constitute the past history of the world is finite and the world had a true beginning in time.

This reasoning, observes St. Thomas, is as decidedly puerile as the first. The objector unconsciously marks out a certain point in the past history of the world and computes the number of years that have elapsed between this point and the present moment. If we want to find out the true age of the world, we must not, however, start from some illusory beginning when no such a beginning exists. A completed number of years can not be conceived but between two definite extremes. But, if the world had no beginning, the only extreme from which we can start is the present moment; and we then clearly conceive that the temporal series is indefinite in either direction: indefinite in its future, indefinite also in its past.

And yet, St. Thomas admits that the world had a true beginning. Philosophy had furnished him serious reasons for believing in the infinitude of the temporal series; it had been, however, incapable of leading him to a definite conclusion. Holy Scripture then steps in and furnishes her own proof of the youth of the world. She imposes her conclusion on St. Thomas's mind. The philosopher bows down his head and the theologian wins the day.

To what extent the finiteness of the temporal series tallies with the Thomistic system as a whole, I will not here discuss. I will also refrain from examining the intrinsic value of the proofs drawn from Holy Scripture. I confess myself incompetent in theological

matters, and I know too well how liable to errors and adventures upon the field of a science in which he has no experience.

Moreover, we have seen how unimportant the act of creation is, far as the nature of the creative act is concerned. It is also with regard to the state of essential dependence, an unceasing condition of the world. It is this dependence that constitutes creation. It is this dependence that requires Providence.

So far from being "remote and vacuous," Providence constantly watches over all his creatures, over the just, over each single drop of water of the ocean, over the angels of heaven.

For such is, indeed, the Thomistic doctrine of Providence. Providence has been defined as the wisdom which directs all things to their proper ends. According to St. Thomas, Providence necessarily exists in God. All the good that is in the world argues, must be attributed to God. But good is not only with regard to their nature, but also with regard to their ultimate end and to the means whereby they are directed to that end. As the wisdom of God is manifested in the nature of things, so he is manifested also in his directing them to proper ends and means. It is in this directing action that Providence is manifested.

This Providence, St. Thomas continues, is not a mere supervision of the world's events. God is not a distant God who directs his business from the distance, while he neglects the details. He takes care of the minutest details. Not even the most insignificant act of ours can be accomplished without his permissive will and his actual concurrence.¹⁶

We may concede to William James that the pragmatist conception of God in many respects, unlike the God of pragmatism, has been a real progress in our knowledge of the divine nature is an interesting question which I shall not touch. I shall be satisfied if the preceding argument has brought home the truth that the scholastic God, the God of the philosophers, and heaven, can surely be no gentleman. His presence is needed in the dust of our human trials, even more than in the empyrean."

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¹⁶ Cf. Thomas Aquinas, "Summa Theol.," I, XXII., art. 1.

¹⁷ *Ibid.*, art. 2.

REVIEWS AND ABSTRACTS OF LITERATURE

Zur Klinik der Dementia Præcox. WIEG-WICKENTHAL. Carl Marhold Verlagsbuchhandlung. 1908. Pp. 121.

In view of the wide attention recently attracted to the problem of dementia præcox through the studies of Meyer and Hoch in this country, as well as the more fanciful speculations of a section of European psychiatry, this presentation of the matter from a more Kraepelinian view-point is far from untimely. The material is based upon that coming to the author's personal notice during the past four years, as well as the terminal stages of earlier cases; twenty-one histories are quoted, several in great detail. The fundamental criteria of the disorder are the volitional disturbances and apparent emotional incoordinations, but especially the characteristic terminal condition. First comes the group of cases, usually not difficult of recognition, which after an apparently normal childhood and adolescence sink into dementia without any symptoms of a very positive character (*dementia simplex*). In the remaining forms the fading of the personality is accompanied by a varying amount of distortion; the hebephrenic form usually gives in the beginning a picture most resembling the excited phase of manic-depressive insanity, in the catatonic form the purely motor symptoms are the most prominent, other cases are most marked by paranoid traits. Into this tripartite classification the similar conception of normal mental faculties has to a certain extent woven itself; the paranoid forms representing an affection of the cognitive, the hebephrenic the emotional, and the catatonic the volitional aspects of mental activity. The author tends, however, to a narrower conception and a greater multiplicity of clinical varieties, defining the groups more sharply, though recognizing the continuum between all. He further distinguishes a group with hysteriform-neurasthenic prodromata, a depressive-paranoid form, a form beginning with an acute confusion picture, and the intermittent cases. This multiplicity of forms is perhaps of more psychological than clinical interest, for it has little effect on the prognosis, save in so far as one might find a favorable element in the remissions. If any distinction is to be made, the catatonic form probably has the best prognosis, and the depressive-paranoid form the worst. In this connection it may be remarked that the author hardly lays sufficient stress on the wide variations which the terminal conditions present. These may range from the (superficially) completely vegetative condition also seen in the later periods of general paralysis or in the profound idiocies, to a slight even if distinct residuary deficiency, leaving the patient with a considerable fraction of his mental powers preserved. Such individuals are frequently able to attain a relative independence in a humbler place in life than that which they originally held.

The author's most important deviation from Kraepelin seems to be in the matter of the paranoid forms of the psychosis. To dementia paranoides he accords but brief mention, and is inclined to relate it more

2. Every acute or subacute psychosis with hysteric or neurasthenic characters appearing in a patient previously healthy and with neither degenerative predisposition nor hystero-neurasthenic antecedents, points to dementia præcox, especially if ushered in by a stuporous or violent condition (catatonia).

3. An early differential diagnosis is often impossible in such hysteriform conditions, because both groups of diseases, at least in the earlier stages, may exhibit purely functional (volitional) disturbances, aside from any clearly evident dementia or dissociation.

4. In the cases beginning with neurasthenic symptoms, the slight apathy and loss of interest, in marked contrast to the behavior of the true neurasthenic, speaks for dementia præcox.

The group of cases beginning with an acute confusion picture are taken mainly from Kraepelin's catatonias, and the main point raised is the not unfamiliar one of real or apparent confusion. The cases under the intermittent group are quite interesting. The individual exacerbations are not necessarily of a similar character. We have to do here with a psychosis that begins, say, with a confusion picture that may clear up to a considerable extent only to be followed by a second, perhaps a catatonic, which may be later followed by a hebephrenic attack which does not remit, but runs its course to the terminal dementia. Each attack will show the symptoms characteristic of a beginning præcox case of that type, save that the dementia is postponed, but when it does occur it is characteristic. Where there is an alternation of the hebephrenic and catatonic states the analogy to the manic-depressive group is quite striking, save that the manic-depressive cases recover, while there is in the præcox cases probably a slight mental defect in each remission, growing more marked with the successive attacks. This form of the psychosis, according to the author, is also especially frequent among women.

Wieg-Wickenthal's view-point being mainly a clinical one, he touches only incidentally on the psychology of the disorder, and makes no attempt to go beyond the clever analyses of Erwin Stransky. These, it will be remembered, refer the essence of the dementia præcox state to an ataxia of the cognitive and affective elements in the individual's life. The patient's experiences no longer call up the affective qualities ordinarily associated with such experiences, but stronger, weaker, or incongruous ones. Behavior naturally suffers accordingly; hence the smiling indifference to the most serious situations, coupled with the causeless outbursts of catatonic fury. This theory rather runs counter to the best conceptions of the nature of emotion, and it may be questioned whether, since the value of such analysis is at best wholly descriptive, we should not meet the known facts of the situation better by substituting *reaction* for *affect*. The ataxia concept is an excellent one, but we hardly know enough of the emotional life of these cases to make this an element of psychological analysis. Clinical observation infers the emotional condition from the outward behavior of the individual in certain more or less elementary situations. We speak of the individual as apathetic because

his motor responses are of a sort usually associated with an apathetic affective reaction in normal individuals. It is, however, to be noted, that the emotional value of the reaction is fundamentally given in the outward and visible results of the organic processes with which it is associated; which is here beside the point. Inasmuch as the character of the reaction largely limits the value of introspection, it is probable that the processes should afford as reliable an index of affect as is obtained in these cases. No reliable data on this point are available. A few observations with the much-abused galvanometer have been made. The writer has observed a terminal dementia præcox during many years, whose reactions to ordinary tests do not differ in any superficial respect from those of a normal, clear, highly refined and educated psychasthenic. The writer himself indicates something of this sort in the summary of case 5, where he speaks of a "*stuporöses Verhalten, von einem lebhaften Innenleben zeugnend*." . . . P. lacht verzückt, betet, ist teilweise ängstlich. This passage strongly emphasized the insufficiency of our present conceptions of the states in dementia præcox; and it is doubtful if there is more fundamental ataxia than that of noopsyche, or a failure of the adequate reaction, in dementia præcox.

This conception may be helpful in understanding the differentiation of the clinical picture in certain initial forms of dementia præcox and the profounder confusions of the manic-depressive condition. The essential point is, as Wieg-Wickenthal and others have pointed out, that the disordered behavior of the manic-depressive case is a normal reaction to the variety of delusions, occasionally constituting the immediate mental basis of the delusions. The delusions in dementia præcox, on the other hand, are not based on a normal reaction in the presence of good orientation and relatively intact consciousness. In the former case the normal reaction and reaction is preserved relatively intact; though the individual might react if placed in a situation which the disease thrusts upon him subject to the condition that the other elements are coordinated, but noopsyche in dementia præcox condition, on the other hand, both the normal reaction and the end effects may be largely preserved; but the reaction is not capable of properly discharging into the other. Thus it may be added, the experimental problem is largely to determine the existence and amount of confusion.

It is some two years since Adolf Meyer called attention to which the study of mental diseases in general, and particularly, was liable in taking general paralysis as a model of mental diseases. Wieg-Wickenthal not only takes the paradigm, but throws dementia præcox into

¹ The italics are mine.

it; the closeness of the analogy which he attempts to draw between them is quite striking. He is unequivocally in favor of the intoxication hypothesis in dementia præcox; cf. on page 104, where he says: "Die angedeutete Aehnlichkeit bezüglich der Mannigfaltigkeit der Verlaufsweisen der paralytischen Psychosen und der Dementia præcox findet ihre Ergänzung in weiteren Berührungspunkten insofern, als uns nach neuerer Auffassung sowohl die paralytischen als auch die Dementia præcox-Psychosen nur als Teilerscheinungen einer allgemeinen, tiefgreifenden *Stoffwechselstörung*, die im Gehirne sowohl als auch in anderen Organen greifbare, organische Veränderungen hervorrufen, entgegentreten."

Again on page 50 he draws a sharp distinction between the functional psychogenic character of hysterical disturbances and the dementing processes in dementia præcox, though acknowledging that the latter may often be seen ensuing upon the former; to this extent only will he speak of *Mischformen* between hysteria and dementia præcox. But while it is often the practise to speak of hysteria as a functional disorder *par excellence*, yet the present writer is by no means sure that it is not better to regard this sort of function as mainly a name for what we do not know about structure. However, be the actual disease process in dementia præcox one of intoxication or of disordered anabolism or catabolism—they are all one essentially—this helps us very little toward a better understanding of fundamental genetic and etiological questions. Even admitting that, as has been recently suggested, the symptoms of dementia præcox appear with startling frequency upon the soil of a specific and well-defined temperament and way of dealing with mental situations, their etiological relationship is at present a matter for the individual conscience. Few, indeed, will be found to express belief in a dementia præcox the product of *purely mental* causes,

"Ef tangles shud settle it (horrid reflection!)
Wich of our onnable body'd be safe?"

Various clinical, and certain experimental, observations may be cited in support of the view that the psychogenesis plays in characterizing the dementia of dementia præcox a role far more important than it plays in the dementia of, say, general paralysis; but in either case the mental factor contributes to the clinical picture only the color, not the outline.

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JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. September, 1908. *The Alleged Fallacies in Mill's Utilitarianism* (pp. 469-488): JAMES SETH.—"All that is necessary in defense of Mill from the charge that he has fallen into fallacies which are patent to the veriest tyro in logic, is to interpret his argument in the light of its context and of the purpose the author has in

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NOTES AND NEWS

WE take the following from *Science* for December 4: "The Scientific Association of Johns Hopkins University held the first monthly meeting of the present scholastic year in Hopkins Hall, November 11. Two important papers were presented. The first was by Professor J. B. Watson, the newly-elected professor of experimental and comparative psychology, upon the subject of "Methods and Apparatus in Comparative Psychology." Professor Watson gave a brief description of the nature of the problems in comparative psychology. The position was taken that the behavior of animals can be studied in a scientific way; that the facts thus obtained can be stated objectively and that they deserve to have equal rank with other observations in experimental psychology and in biology. The view was expressed that the study of the sensory processes of animals is the most hopeful field at present. Exact and scientific statements concerning the nature of color vision, hearing, smell, contact, etc., in animals are much needed. At present almost nothing is known in any exact way of the functioning of the sense organs of the higher animals. Such studies should be undertaken in a more comprehensive way than has heretofore been the case. Observations made by the same investigator on many species of animals are desirable at present. Only in this way can a true phylogeny of mind be obtained. When the facts are before us we shall be in a position to begin the comparison of the behavior of animals with the behavior of man. Several pieces of apparatus for testing hearing, vision, temperature, etc., were briefly described. A description of an apparatus for the study of olfactory sensations was given at length. The principal feature of this apparatus consists of a constant air blast supplied with two vents. Two leads of glass tubing attached to these vents pass respectively into two flasks containing different odorous solutions, or different intensities of the same solution, and from the flasks to short metal tubes which project into a glass-lined, air-tight compartment. The ends of the two tubes protruding into the

compartment are narrowed to an opening of 1 mm. They are about twelve inches apart and are inclined at an angle so that the two streams of air, laden with the olfactory particles, pass through a funnel situated in the opposite side of the compartment. This funnel (which projects from the compartment) is connected leading to a vacuum pump. Two fine streams of air pass over the surface of the odorous fluids and thence into the vacuum. At the same time the vacuum system at the opposite side of the compartment tends continuously to draw forward the two streams of air in a straight line. Two partitions of glass extend from the top of the compartment through which the two streams of air run parallel to the air columns, meeting near the point where the latter converge. The animal is admitted into the compartment at the point where the partitions meet. These partitions serve to prevent mixing. Food is kept always with one of the two odorous fluids and flasks are so arranged that they may easily be changed with respect to the right and left position. The animal has to choose the right in order to get food, and then after the odors are changed it chooses the left. In the final control tests a special electric feed is used to keep all food out of the compartment until the animal has actually made the correct choice. The hope was expressed that the help of such an apparatus, much needed knowledge of olfactory development and the manner of functioning of the olfactory sense might be obtained. It ought to be possible, *e. g.*, to find out how an animal is sensitive to all the range of stimuli to which the olfactory sense responds, and how far animals differ in this respect. It is easier for the animal to associate the *nauseous* odors with the getting of their food, than the *fruit*, *flower*, or *perfume* odors, etc. The quantitative study (delicacy) of the olfactory sense offers great difficulties, but it is hoped that this study will be at least to such an extent as to enable us to obtain olfactory records to be compared with similar records from man. Functioning of the olfactory sense to those which arise in the study of the olfactory sense is the study of every other sensory field. Experimental psychology is doing this and is rapidly coming to extend its study of the olfactory sense to the animal world. There is no reason to limit experimental psychology to man alone. Such functional questions when solved will give us the much-needed complement to all the painstaking experimental work which has already been accomplished so far.

THE list of those who will take part in the discussion of the problem of idealism at the forthcoming meeting of the American Philosophical Association, at Baltimore, includes Professor Royce, of Harvard, Professor Dewey and Woodbridge, of Columbia, Professor Bakewell, of the University of Chicago, Professor Smith, of Princeton. The presidential address will be given by Professor Münsterberg, of Harvard, on the "Problem of Psychology."

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